CHAPTER 4

SECTION 4(f) AND 6(f) EVALUATION

The purpose of this section of the DEIS is to analyze the adverse impacts of the project on sites that are regulated by Section 4(f) of the Department of Transportation Act of 1966 (as amended). Section 4(f) states that no highway project should be approved which requires the use of any publicly owned land from a public park, recreation area, wildlife and waterfowl refuge or historic site unless there is no feasible or prudent alternative to the use of such land. In addition, adverse impacts to these 4(f) sites must include all possible planning to minimize harm resulting from such use. This evaluation will provide facts about each Section 4(f) protected property in the Study Area and potential effects on these sites.

What is a Section 4(f) Property?

A Section 4(f) property could be a public park, recreation area, wildlife or waterfowl area, or a historic property such as a house or building.

The Study Team determined that there would be two Section 4(f) properties affected by the project and evaluated whether there are feasible/prudent alternatives to the use of the site, and identified potential measures to minimize harm. A different piece of legislation that also covers recreational properties is Section 6(f) of the Land and Water Conservation Act of 1965. There are no 6(f) properties affected by any of the build alternatives.

The alternatives associated with the project, including the Preferred Alternative (City West) have been discussed in detail in **Section 2.0 Alternatives Considered** of the DEIS. In brief, the project will reconstruct the existing Blue Water Bridge inspection plaza and the I-94/I-69 roadways to better accommodate future security and transportation needs.

4.1 Are there any 4(f) Properties located within the Study Area?

There are four properties located within or adjacent to the Project Study Area as shown on **Figure E.21, Community Facilities** in **Appendix E**. They include:

- Port Huron Township Park No. 1
- Port Huron Township Park No. 2

Riverside Park

Port Huron Township Park No. 2

RV Park in Port Huron Township Park No. 2

- Riverside Park
- E.C. Williams House

Port Huron Township Parks No. 1 and No. 2 are both located adjacent to the north side of I-94/I-69 along Water Street. Township Park No. 1 is located to the east of Water Street and is a day use park. It is approximately 11 acres and includes playground equipment, a picnic area, and in the winter is a popular sledding location. Township Park No. 2 is located on the west side of Water Street and is a 36 acre seasonal RV campground owned and operated by the Township.

Riverside Park is located along the east bank of the Black River on the north side of I-94/I-69 and includes a boat ramp access to the Black River.

The E.C. Williams House is a historic house located north of the existing plaza on 10th Avenue. The house is currently being used as a dentist's office.

4.2 Are there any Impacts to these Properties?

Both Township Park No. 2 (the campground) and Riverside Park would not be impacted by the proposed project. There would be no effect on the activities, features, and attributes that qualify these resources for protection under Section 4(f).

Some minor property acquisition would be required from Township Park No. 1 for the construction of the freeway and interchange at Water Street under all three of the Build Alternatives.

The E.C. Williams House would be acquired for the construction of the Preferred Alternative (City West).

4.3 Port Huron Township Park No. 1

4.3.1 What are the Effects of the Project on the Port Huron Township Park No. 1?

The No-Build Alternative would have no effect on Port Huron Township Park No. 1.

Under the City East Alternative, City West Alternative, and Township Alternative, reconstruction of the I-94/I-69 mainline and Black River Bridge would have a negligible effect on the function of the park, as they would require only a narrow strip of park property (approximately 0.3 acre) along the edge of the property that now borders the interstate off-ramp. Temporary right-of-way (approximately 0.1 acre) would be needed at the entrance to the park to allow for driveway grading and connection to the new Water Street roadway. There is the potential that stormwater detention (approximately 1.2 acres) may be needed on the park property near the Black River for drainage purposes.

Port Huron Township Park No. 1

MDOT coordinated with Port Huron Township officials and with the Township Parks and Recreation Commission regarding the potential impacts to Township Park No. 1. Meetings were held with the Township Supervisor and Parks and Recreation Commission December 6, 2006 and February 9, 2007. Park exhibits were prepared and presented to the public as part of the public meeting held December 7, 2006 at the Girl Scout building on Water Street.

A letter was received from Port Huron Township April 10, 2007 indicating the following: *"Based on information provided and the representations made by MDOT, the Charter Township of Port Huron believes that the proposed work will involve minor or de minimums use of the Port Huron Township Park No. 1"*. Further the letter indicated: *"The Chairman of the Charter Township of Port Huron Parks and Recreation Commission has reviewed and agrees with the assessment of the impacts of the proposed project as well as the proposed mitigation"*. A copy of this letter is included in **Appendix D.6** of the DEIS. The Parks and Recreation Commission indicated at the meetings that they were interested in the following mitigation items:

- Potentially returning excess property to the Township Park
- Landscaping the potential drainage easement so that it is an aesthetically pleasing natural area.

FHWA has determined that the potential impacts to Port Huron Township Park No. 1 are *de minimis* based on the following:

1) The transportation use of the park does not adversely affect the activities, features, and attributes that qualify the park for protection under Section 4(f).
2) The Township officials with jurisdiction over the park have been informed of the intent to make the *de minimis* impact finding and have concurred with that finding.
3) The public has been afforded an opportunity to review and comment on the effects of the project on the park.

Ultimately, the Preferred (City West) Alternative will not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f).

What Does *de minimis* Mean?

Recent changes to the Section 4(f) requirements allows the Federal Highway Administration to determine that certain minor uses of Section 4(f) land will have no adverse effect on the protected resource. This determination, called *de minimis*, greatly simplifies the process for complying with Section 4(f).

4.4 E.C. Williams House

4.4.1 Where is the E.C. Williams House? Why is it of Historic Importance?

The E.C. Williams House is located at 2511 10th Avenue in Port Huron, and has been determined to be eligible for the National Register of Historic Places (NRHP). The Section 106 Evaluation found in **Section 3.15 Cultural Resources** of the DEIS provides greater detail on the history of the property.

The E.C. Williams House is a Registered Michigan Historic Site, and is eligible for the NRHP under Criterion B for its association with E. C. Williams, a prominent local newspaper publisher in the area's history. Criterion B is for properties that are associated with the lives of people significant to our past. It is also eligible for the NRHP under Criterion C, as an excellent example of an early Queen Anne duplex residence. Criterion C is for properties that represent characteristics of a type, period or method of construction.

What is a Section 106 property?

Section 106 of the National Historic Preservation Act of 1966 requires every Federal agency to "take into account" how its projects will affect historic properties, which includes prehistoric and historic ruins. Activities include construction, rehabilitation, demolition, licenses, permits, loan guarantees, transfer of federal property, etc.

4.4.2 What are the Project Impacts on the E.C. Williams House?

The effects of the project are described in greater detail in the Section 106 evaluation in **Section 3.15** of the DEIS and are summarized here.

Front View E.C. Williams House

Side View E.C. Williams House

No-Build Alternative: The No-Build Alternative would have no effect on the E.C. Williams house.

City East Alternative: The City East Alternative would not take any of the E.C. Williams House property, so there would be no direct impact on the house or yard. However, the established urban neighborhood that buffers the property from the bridge plaza and commercial area nearby would be substantially affected as part of the project. Further, realignment of Pine Grove Avenue would bring the traffic noise and glare closer to the E.C. Williams house, though traffic volumes immediately next to the house on 10th Avenue are not anticipated to substantially change.

The features that make the house historically significant would not change and landscaping could mitigate adverse indirect effects on the house. Furthermore, since this structure has always been located within an urban setting, MDOT has received concurrence from the State Historic Preservation Office (SHPO) that the City East Alternative would not adversely affect this property.

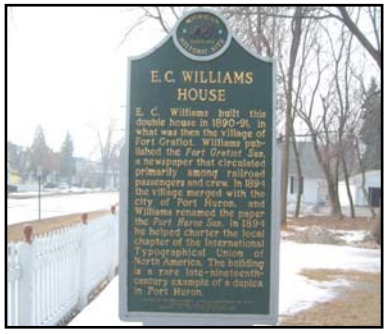
City West (Preferred) Alternative: The City West Alternative will require the full acquisition of the property and relocation of the E.C. Williams House. Therefore, MDOT has proposed relocating the house from its historic location as a way to preserve the structure. The SHPO has determined that this will constitute an Adverse Effect on the property.

Township Alternative: The Township Alternative does not propose any new road construction closer to the E.C. Williams House than the current road configuration. The existing plaza would be reconfigured for different use, but would remain within its current footprint. SHPO has concurred with MDOT that this alternative would have No Adverse Effect on the property.

What is the State Historic Preservation Office (SHPO)?

Established by the National Historic Preservation Act of 1966, the SHPO is an agency within each state, territory and protectorate government charged with enforcing the provisions of the Act. SHPOs receive federal funds from the National Park Service and allocate matching funds and grants to local agencies and private citizens for the protection of sites eligible for listing in the National Register of Historic Places.

4.4.3 Is There Any Way to Avoid Any Impact Upon the E.C. Williams House?



Historic Marker for E.C. Williams House

As noted above, the City East and Township Alternative would not have any direct effect on the property and the effects of these alternatives have been classified as No Adverse Effect based on coordination with SHPO. However, these alternatives do not meet the Purpose and Need of this project, the security needs of CBP, and could severely hinder emergency service response times. For that reason these alternatives are not considered prudent. There is no way to fully implement the Preferred Alternative without requiring the acquisition and relocation of the E.C. Williams property. Leaving the E.C. Williams House in place would create an Adverse Effect as the house would become part of a large street level parking lot within the plaza complex and would be inaccessible to the general public.

4.4.4 How Will MDOT and FHWA Minimize Harm on the E.C. Williams House?

As noted above MDOT has proposed to relocate the house, which is considered an Adverse Effect, though it is preferable to demolishing the house or building around it. SHPO has concurred that relocating the house would be the best course of action. In coordination with MDOT dated March 15, 2007, SHPO has requested the following mitigative measures be performed in association with the house relocation:

Historic Marker: SHPO has noted that the existing house contains a single-post Michigan historic marker at its current location. The proposed new location appears to have little in common with the original location since it will not be in a neighborhood setting. Nevertheless, since Williams started the local newspaper and since the building is a unique example of a duplex, SHPO feels the building is significant enough to have a new two-post marker to be erected at the relocation site. The new marker would replace the old one to inform people that the house has been relocated.

Additional Research: SHPO has requested the following additional work be done so that adequate documentation is available about the house and its history:

- Biographical information, including an obituary, for Edwin C. Williams
- Additional information about the Fort Gratiot Sun (publishing dates and subsequent papers as well)
- SHPO does not have information on the Alex J. Sarjeant family who occupied the home from 1904 through 1988. Therefore, they have requested biographical information about this family and their role in the community.

4.4.5 What Efforts have MDOT and FHWA made in Coordinating with SHPO on the Effects of this Project on the E.C. Williams House?

As noted previously, MDOT and FHWA have actively coordinated with SHPO and the general public on this project. They will continue to do so and also actively provide notification to the Advisory Council on Historic Preservation (ACHP). The SHPO has requested that ACHP be provided with the following information as per 80 CFR §800.11:

- A description of the proposed project, specifying the federal involvement, and its area of potential effects, including photographs, maps, and drawings, as necessary
- A description of the steps taken to identify historic properties
- A description of the affected historic properties, including information on the characteristics that qualify them for the NRHP
- A description of the proposed project's effects on historic properties
- An explanation of why the criteria of Adverse Effect were found applicable or inapplicable, including any conditions or future actions to avoid, minimize or mitigate adverse effects
- Copies or summaries of any views provided by consulting parties and the public

A Memorandum of Agreement (MOA) will be drafted between FHWA, SHPO and ACHP to ensure that adverse effects of the project will be adequately addressed.

What is the Advisory Council on Historic Preservation (ACHP)?

ACHP was established by the National Historic Preservation Act of 1966. ACHP is an independent Federal agency that promotes the preservation, enhancement, and productive use of our Nation's historic resources, and advises the President and Congress on national historic preservation policy. ACHP is the only entity with the legal responsibility to encourage federal agencies to factor historic preservation into Federal project requirements.

ACHP ensures through the Section 106 review process, that the public, Indian tribes, and state and local governments have a voice in federal decisions that impact historic properties.

CHAPTER 5

MITIGATION

5.1 What is Mitigation?

Mitigation is defined as the elimination, reduction or control of the negative environmental effects of a project, and includes measures to address any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.

The goal of mitigation in this project is to preserve, to the greatest extent possible, existing neighborhoods, land use, and resources, while improving transportation and security. Although some negative impacts are unavoidable, the Michigan Department of Transportation (MDOT), through design, environmental, and construction processes, takes precautions to protect as many social and environmental systems as possible. MDOT will commit to facilitate discussion between the local community and other state agencies that may have grants or other resources to bring to the Port Huron community that could enhance the overall community. Construction activities that include the mitigation measures described below are contained in the 2003 Michigan Standard Specifications for Construction.

The following paragraphs discuss the mitigation concepts that are being considered at this time for the project. Without the benefit of detailed design plans and data, tentative mitigation ideas are proposed as a means to avoid or reduce adverse impacts on certain resources. Further agency coordination will continue throughout the remaining phases of the environmental clearance and design stages. More mitigation measures may be developed if additional impacts are identified.

Specific project mitigation measures will be included on the design plans and permit applications and can be found in the Project Mitigation Summary "Green Sheet" located at the end of this section.

5.2 How are Right-Of-Way Acquisitions and Relocation Impacts Mitigated?

Compliance with State and Federal Laws: Right-of-way acquisition and relocation assistance and advisory services will be provided by MDOT in accordance with Act 31, Michigan P.A. 1970; Act 227, Michigan P.A. 1972; the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and Act 87, Michigan P.A. 1980, as amended. MDOT will inform individuals, businesses and nonprofit organizations if the project will have any impacts on their property. Every effort will be made, through relocation assistance, to reduce the impact if and when it occurs.

Residential: MDOT is required to determine the availability of comparable, decent, safe and sanitary housing for eligible displaced individuals. Appropriate measures will be taken to ensure that all eligible displaced individuals are advised of the rights and benefits available and course of action open to them.

Business and Nonprofit Organization: MDOT is required to offer relocation assistance to displaced businesses and nonprofit organizations. Appropriate measures will be taken to ensure that all eligible displaced businesses or nonprofit organizations are advised of the rights and benefits available and courses of action open to them.

Purchasing Property: MDOT will pay fair and just compensation for fee purchase or easement use of property required for transportation purposes. "Just compensation," as defined by the courts, is the payment of "fair market value" for the property rights acquired plus allowable damages to any remaining property. "Fair market value" is defined as the highest price estimated, in terms of money, the property would bring if offered for sale on the open market by a willing seller, with a reasonable time allowed to find a purchaser, buying with the knowledge of all the uses to which it is adapted and for which it is capable of being used.

Hardship Acquisitions: During this portion of the Study period, MDOT is acquiring a limited number of "hardship

acquisitions", as allowed and defined in the Federal Guidelines as having "health, safety or financial" hardships. Property Owners that believe they qualify to be purchased have been encouraged to Contact: MDOT Acquisition Project Manager, Pamela Evans at (248) 483-5187 and to send their supporting documentation to: Pamela Evans, MDOT Acquisition Project Manager, 18101 W. 9 Mile Road, Southfield, MI 48075.

Relocation Information: A booklet entitled "Your Rights and Benefits" detailing the relocation assistance program can be obtained from MDOT, Real Estate Support Area, P.O. Box 30050, Lansing, Michigan, 48909 or phone (517) 373-2200.

Property Acquisition Information: A booklet entitled "Public Roads & Private Property" detailing the purchase of private property can be obtained from MDOT, Real Estate Support Area, P.O. Box 30050, Lansing, Michigan, 48909 or phone (517) 373-2200.

Conceptual Stage Relocation Plan: The conceptual stage relocation plan prepared for this project is located in **Appendix B.**

5.3 How are the Aesthetic and Visual Conditions Mitigated?

Mitigation of aesthetic and visual impacts could come in many forms. Some of the more common measures could include:

- Developing and applying corridor standards for selective vegetative clearing and thinning, earthwork, landscaping or other methods of screening
- Incorporating architectural features into the design of retaining walls, security walls, and other structures
- Utilizing directional lighting and creative berm concepts at the plaza and along the highway corridor
- Applying colors and/or textures to help soften the visual appearance of proposed structures and hard surfaces

Attractive landscaping in the Study Area would also enhance the visual character for both drivers and those viewing the facility from adjacent properties. The local community could also adopt uniform standards in the Study Area for

What is Directional Lighting?

A method of providing light to a given area without lighting unwanted areas nearby.

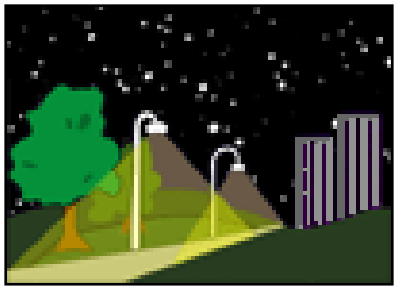


Illustration of Directional Lighting

landscaping and signage in order to improve the aesthetic value.

Selection of properly-shielded light fixtures will be critical in minimizing unwanted light pollution. Placement and alignment of fixtures should be designed to maximize light where light is needed, minimize shadows where shadows are not wanted, and provide a secure environment for the plaza.

5.4 How will Air Pollution be Controlled During Construction?

The construction contractors must comply with all federal, state, and local laws and regulations governing the control of air pollution.

Dust Control: During the construction of any project, the contractors will be responsible for adequate dust-control measures so as not to cause detriment to the safety, health, welfare, or comfort of any person, or cause damage to any property, residence, or business.

Bituminous

Bituminous refers to asphalt pavement.

Bituminous and Concrete Plants: All portable bituminous and concrete plants and crushers must meet the requirements for the rules of Part 55, Air Pollution Control of Act 451, Natural Resource and Environmental Protection. Any portable bituminous or concrete plant and crusher must meet the minimum 250-foot setback requirement from any residential, commercial, or public assembly property and the contractor may be required to apply for a permit-to-install or a general permit from the MDEQ. The permit process including any public comment period, if required, may take up to six months.

What does PM stand for?

Particulate matter (PM) is the term for solid or liquid particles suspended in the air. Some particles are large or dark enough to be seen as soot or smoke, but fine particulate matter is generally not visible to the naked eye.

Dust collectors will be provided on all bituminous and concrete proportioning plants. Dry, fine aggregate material removed from the dryer exhaust by the dust collector will be returned to the dryer discharge unless otherwise directed by the engineer.

Construction emission may represent a large new source of PM2.5 emissions. The implementation of a construction emissions reduction plan may be considered to target emissions from construction sources. This plan may include

actions such as retrofitting off-road construction equipment, using ultra low sulfur fuels for all equipment and limiting the age of on-road vehicles used in construction projects, fugitive dust control plans, diesel particulate traps and oxidation catalysts as well as using existing power sources or clean fuel generators rather than temporary power generators.

Off-Road Construction Equipment: Construction equipment will be retrofitted with diesel oxidation catalysts or diesel particulate filters from the EPA or the California Air Research Board Verified List. Additionally, emissions will be further reduced by installing retrofit emission control devices on all non-road equipment with higher emissions than EPA's Tier 2 Standards. The following table indicates the model year for which these standards take effect. Equipment that is of a model year older than the year given for that equipment's respective horsepower range should be retrofitted.

Horsepower Range	Model Year (or newer)
50-99	2004
100-299	2003
300-599	2001
600-749	2002
750 and up	2006

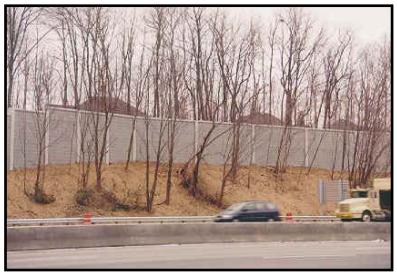
Nuisance Odors and Unnecessary Air Pollution: In addition to installing the required emission control devices, contractors should be required to use methods to control nuisance odors and unnecessary air pollution associated with diesel emissions from construction equipment including, without limitation, the following:

1. turning off diesel combustion engines on construction equipment not in active use, and on trucks that are idling while waiting to load or unload material for five minutes or more;
2. locating diesel equipment away from the general public and sensitive receptors (e.g., fresh air intakes, air conditions, and windows); and

3. utilizing electronically-powered scissor/man lifts.

Signage: The addition of signage at the Plaza and along the Blue Water Bridge will encourage truck drivers, tour bus drivers, and drivers of passenger vehicles to turn off engines to reduce unnecessary idling during long delay periods. For example, signs can be activated when accidents occur on the Bridge or at the Plaza or during peak traffic periods or when vehicles awaiting customs inspection will be stopped for a lengthy period of time, unless idling is necessary to power work-related mechanical or electrical operations for reasons other than propulsion.

5.5 How will Traffic Noise be Mitigated?



Examples of Noise Barriers

Noise barriers were analyzed at three locations within the Study Area. Two noise barriers were analyzed for the City East Alternative, one for the Preferred Alternative and three for the Township Alternative. Noise abatement through the use of noise barriers and other mitigation techniques will be considered according to the MDOT noise abatement criteria discussed in **Section 3.10 Noise Impacts**. MDOT has defined a five-decibel reduction in the design-hour L_{eq} noise level as the minimum desired standard for the implementation of noise mitigation to be considered feasible. MDOT considers $38,060 (2007 dollars) or less per residence as the reasonability criteria for the implementation of mitigation measures. Potential areas where it is deemed reasonable and feasible to locate noise barriers are (1) northwest of the M-25 Connector between Hancock Street and the Black River, for either the City East Alternative, the Preferred Alternative, or the Township Alternative, and (2) west of I-94/I-69 and north of Lapeer Road for the Township Alternative.

5.6 How will Noise and Vibration be Controlled During Construction?

Construction noise will be minimized by measures such as requiring that construction equipment have mufflers, that portable compressors meet federal noise-level standards for that equipment, and that all portable equipment be placed away from or shielded from sensitive noise receptors if at all

possible. Construction activities will be limited to dawn to dusk and all local noise ordinances will be followed.

Where pavement must be fractured, structures removed, or foundation piles driven, care will be taken to prevent vibration damage to adjacent structures. In areas where construction-related vibration is anticipated, basement surveys will be conducted before construction begins to document any damage caused by highway construction. Identification of properties to be offered basement surveys will be determined during the design phase.

Special care will be given to prevent excess noise and vibration

5.7 What Measures will be taken to Protect Water Quality?

Adequate soil erosion and sedimentation control measures based on MDOT's approved soil erosion program will be implemented for all Alternatives. Runoff will be diverted through vegetative controls (grassed waterways) into containment (detention) areas prior to outletting into the streams, wherever possible. This will promote infiltration, thereby reducing the potential impact on the streams from added runoff, sediments, and associated pollutants, including deicing salts, heavy metals, and herbicides. The Black River Bridge will be designed so that water runoff will be collected and channeled down the slope adjacent to the river rather than directly off the bridge into the river. Scupper drains will not be used on the bridge portion over the water.

What are Scupper Drains?

Drains on bridges which allow water to fall into the river.

Existing scupper drain on the Black River Bridge

Storm water detention basins will be constructed to control the rate of water discharged to match the existing discharge quantities. The proposed detention basins would be constructed in the northeast quadrant of the Water Street Interchange and the east side of Stocks Creek, south of I-94/I-69. Runoff from the detention basins will be directed into a 300-foot long vegetated ditch prior to discharging into Stocks Creek or the Black River, to help filter any suspended sediment prior to discharge.

Example of a detention basin

The use of best management practices (BMPs), including vegetative controls such as swales and buffer strips will be evaluated in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) statewide stormwater discharge permit. Runoff will be diverted through

vegetative controls and into containment areas prior to outletting to waters of the State to the maximum extent practical.

5.8 What Measures will be taken to Protect Groundwater?

Sealing water wells and sewer lines for the protection of groundwater quality is ensured by MDOT specifications imposed on the contractor. For houses or other structures in urban situations that are relocated or must be torn down, sewer lines must be filled with concrete grout at the basement level, and water must be turned off at the street. Abandoned water wells must be filled with cement grout applied from the bottom upwards through a conduit extended to the bottom of the well (in one continuous operation) until the well is filled. The contractor must also meet all local and Michigan Department of Community Health (MDCH) requirements.

Contractors are generally allowed 60 to 90 days following issuance of the demolition contract for the site to be completely cleared. However, only 48 hours is permitted following removal of any structure to fill the foundation to ground level. If the foundation is not filled within this time, MDOT may take independent action to fill the foundation, charging the costs incurred to the contractor. The MDEQ notification procedures for demolitions will be followed.

Artesian Head

Is a groundwater feature under enough pressure to rise above the aquifer containing it.

The above specifications have been approved by the MDCH. The contractor is also referred to the local health department for assistance when special conditions such as flowing wells or wells with a high artesian head are encountered. If high water tables are encountered in cut sections, special methods will be used to reduce any negative effects on the area groundwater. One such method is to raise the road grade.

Drains will be built as necessary along the pavement to drain the roadway sub-base. Edge drains are used to intercept horizontal seepage. Stone baskets are used to maintain and reroute the flow of springs when found below the roadway. Intercepted water will be discharged into an available roadside ditch or watercourse. Siltation of watercourses from intercepted water is rare.

5.9 What Measures will be taken to Protect Floodplains, Streams, and Drain Crossings?

Bridge and culvert work at river, stream, and drain locations will require construction staging and additional protection items to minimize impacts on the watercourse. The following items are general mitigation items designed to reduce impacts at water crossings. The design plans will show all specific controls for each watercourse.

Black River Bridge

1. All work below the ordinary high water mark of any river, stream, or drain will require permits from the Michigan Department of Environmental Quality, and/or the U.S. Army Corps of Engineers. All permit conditions will be adhered to during construction. No work will be done in the Black River or Stocks Creek between March 15th and June 30th to provide protection for fish spawning. Work may be done behind an enclosed cofferdam installed prior to the start of the protection dates.

What is Riprap?

Is large rock or other material placed along the banks of a body of water to prevent erosion.

2. All construction operations adjacent to watercourses will include appropriate temporary and permanent erosion and sedimentation controls.

Example of riprap

3. The contractor will be required to maintain a navigable channel on the Black River during all phases of the project. During part-width construction operations, the contractor will place signs both upstream and downstream of the construction area that clearly indicates the location of the navigable channel. The contractor may be required to provide lighting for barges or other navigation obstructions at night.

Erosion

Is the wearing down or washing away of the soil and land surfaces by water or wind.

4. All construction activities will be isolated from flowing watercourse where possible. This can be done by installing a cofferdam (steel sheeting or sand bags) around the construction area.

5. Any channel excavation or riprap placement will be done using part-width construction methods. Work will be done on part of the channel while the water flow is temporarily diverted away from the work area. MDOT has a standard detail showing the temporary water flow

diversion that will be included on the design plans for all projects that require in-stream work.

6. Fill quantities within the 100-year floodplain that exceed 300 cubic yards will require compensating cut to prevent any increase in upstream water surface elevations.

7. Water from dewatering operations will be treated prior to discharge.

5.10 How will Soil Erosion and Sedimentation be Prevented?

Sedimentation

Is a process that deposits soils, debris, and other materials either on the ground surface or in bodies of water.

Accelerated erosion and sedimentation caused by construction will be controlled before it enters a water body or leaves the right-of-way by the placement of temporary or permanent erosion and sedimentation control measures. MDOT has developed a series of standard erosion control items to be included in design plans to prevent erosion and sedimentation. The design plans will describe the erosion controls and their locations. Payment is made to the contractor for construction and maintenance of items used from this list or items specifically developed for the project.

Example of damage caused by erosion

Silt fencing helps to control erosion and sedimentation during construction

MDOT has on file with MDEQ an approved operating erosion and sedimentation control program which ensures compliance with Act 451, Part 91 Soil Erosion and Sedimentation Control. MDOT has been designated an "Authorized Public Agency" by MDEQ and is self-regulated in its efforts to comply with Part 91. However, MDEQ may inspect and enforce soil erosion and sedimentation control practices during construction to ensure that MDOT and the contractor are in compliance with Part 91 and the acceptable erosion and sedimentation control program.

The following is a partial listing of general soil erosion and sedimentation control measures to be carried out in accordance with permit requirements.

1. No work will be done in the Black River or Stocks Creek channels during periods of seasonally-high water, except as necessary to prevent erosion.

2. All road and bridge construction operations will be confined to the existing or proposed right-of-way limits or acquired easements.

3. Road fill side slopes, ditches, and other raw areas draining directly into the Black River or Stocks Creek will be protected with riprap (up to three feet above the ordinary high water mark), sod, seed and mulch, or other measures, as necessary to prevent erosion.

Ordinary High Water Mark

For streams, the OHW is generally the top of the bank of the channel.

4. The surface area of erodible earth material exposed at any one location at one time will be limited to 5,000 feet of dual roadway or 10,000 feet of single roadway. Once the contractor has final graded and stabilized a section of roadway, additional clearing and grading will be allowed.

Grading

Is the process of smoothing, leveling, or creating desired ground slopes in preparation for construction.

5. Areas disturbed by construction activities will be stabilized and vegetated within five days after final grading has been completed. Where it is not possible to permanently stabilize a disturbed area, appropriate temporary erosion and sedimentation controls will be implemented. All temporary controls will be maintained until permanent soil erosion and sedimentation controls are in place and functional.

6. The contractor shall have the capability of performing seeding and mulching at locations within 150 feet of any wetlands, lakes, streams, and drains within 24 hours of being directed to perform such work by the engineer.

7. Special attention will be given to protecting the natural vegetative growth outside the project's slope stake line from removal or siltation. Natural vegetation, in conjunction with other sedimentation controls, provides filtration of runoff not carried in established ditches.

8. The integrity of any agricultural drainage or field tile system encountered will be maintained.

9. The contractor will be responsible for preventing the tracking of material onto local roads and streets. If material is tracked onto roads or streets, it shall be immediately removed.

5.11 How are Wetlands Mitigated?

Wetland Mitigation: Before

Wetland Mitigation: After

For those wetland impacts that cannot be avoided, MDOT will restore previously existing wetlands or create new wetlands in accordance with Act 451, Part 303 Wetland Protection. The wetland mitigation site will be designed, constructed, and monitored in accordance with MDEQ's *Technical Guidance for Wetland Mitigation* dated September 9, 2003. Wetland mitigation will occur within the Black River watershed. Wetland impacts will be mitigated at a ratio of 2:1 for forested wetlands, and 1.5:1 for emergent, scrub-shrub, and open water wetlands. Compensatory mitigation will be in kind; i.e., it will attempt to replace the ecological types and functional values of wetlands impacted.

Monitoring the wetland mitigation site is necessary to determine if the wetland meets the MDEQ's performance standards. Monitoring of the wetland will include items such as water level measurements, vegetation sampling, measurements of different habitat types, documentation of any wildlife activity, photographic records, and documentation of any problem areas. Monitoring of the mitigated wetland will be required for a minimum of five years following construction with a monitoring report submitted annually. Once the mitigated wetland is constructed the site will be protected by a permanent conservation easement to provide for the permanent protection of the natural resource functions and values of the mitigation site.

Although final design will likely result in the further minimization of wetland impacts, preliminary impacts and compensatory mitigation acreages are used for planning purposes at this stage of the project. These preliminary wetland impact calculations and acreages of proposed mitigation for the alternatives are summarized in **Table 5.11.1.**

Table 5.11.1 Summary of Wetland Mitigation

Alternative	Impacts to Forested Wetlands	Proposed Mitigation Acreage Required	Impacts to Emergent, Scrub-Shrub, or Open Water Wetlands	Proposed Mitigation Acreage Required	Total Proposed Mitigation Acreage Required
No-Build	0	0	0	0	0
City East Alternative	1.12 acres	2.23 acres	3.24 acres	4.86 acres	7.10 acres
City West Alternative	1.12 acres	2.23 acres	3.24 acres	4.86 acres	7.10 acres
Township Alternative	2.94 acres	5.88 acres	7.22 acres	10.83 acres	16.71 acres

5.12 What Measures are taken to Protect Existing Vegetation?

Although some tree removal will be necessary, the existing natural and ornamental vegetative cover will be retained wherever possible within the right-of-way. Where the existing groundcover must be removed, replacement vegetation will be established in a timely manner using seed and mulch, or sod.

Roadside trees adjacent to residences will be saved wherever possible. Where trees are to be removed from in front of residences, property owners will be given appropriate notice, and will be offered replacement trees to help offset the functional or aesthetic loss of the trees.

Replacement tree species, size, and numbers will be determined by MDOT's Region Resource Specialist or the Roadside Development Section following coordination with adjacent property owners. For those owners who request replacement trees, the trees will be placed (with the property owner's approval) on adjacent private property as close to the right-of-way line as possible. Property owners will then assume the responsibility for maintaining these trees.

5.13 What will be done to Maintain Wildlife Habitat?

Impacts to terrestrial and aquatic habitats will be minimized during final design through refinements that maintain existing

hydrological conditions, and require construction techniques that minimize the removal of mature trees.

The Black River is managed by the Michigan Department of Natural Resources for trout and salmon. However it is not a designated trout stream. No work will be done in the Black River or Stocks Creek between March 15th and June 30th to provide protection for fish spawning. Work may be done behind an enclosed cofferdam installed prior to the start of the protection dates.

5.14 How are Threatened and Endangered Species Mitigated?

Spotted Turtle

Two animal species, the spotted turtle (*Clemmys guttata*) and round hickory-nut mussel (*Obovaria subrotunda*), were identified by the Michigan Department of Natural Resources and the Michigan Natural Features Inventory as having potential to exist within the Study Area. The spotted turtle is classified by the State of Michigan as a threatened species and the round hickory-nut mussel is classified by the State of Michigan as an endangered species. No records of federally protected species were identified within the Study Area.

Round Hickory-Nut Mussel

No state or federal threatened and endangered animal species were found within the Study Area during the field surveys conducted from September 2003 through June 2004. However, habitat that could be used by the spotted turtle is present within the Study Area adjacent to Stocks Creek.

Special care will be given when working in the potential spotted turtle habitat. Timing of construction will avoid habitats used by the turtle during that particular time of year. June is the primary month female turtles leave their drying pools to nest in nearby upland areas. Thorough searches will be conducted for the turtle within the area of work, and if found, relocated to an appropriate safe area. Barriers will also be constructed to stop the potential for re-entry of the turtle into the work zone. No work will occur in wetland areas adjacent to Stocks Creek between mid-October and the end of March in order to protect potential winter hibernating habitat for the spotted turtle.

5.15 What will be done to Ensure no Migratory Birds will be Impacted?

On projects that involve work on structures over watercourses, MDOT reviews potential impacts to migratory birds that may make (or have made) nests underneath the bridges. During the design phase of the project, the Black River Bridge will be reviewed for past migratory bird nesting activity. If evidence of migratory bird nesting is discovered, coordination between MDOT (Environmental Section and Region Resource Specialist), MDEQ, and U.S. Fish and Wildlife Service will occur. A "Special Provision" that describes procedures for dealing with migratory birds will be included within the project specifications. MDEQ permits required to conduct work on bridges over watercourses may include specific dates when work on bridges will be prohibited for the protection of migratory birds.

5.16 How are Cultural Resources Mitigated?

E.C. Williams House

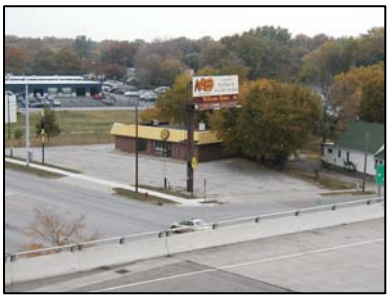
Measures to minimize impacts include avoidance, preservation in place, and recordation of the property and structures prior to the start of construction activities. Appropriate mitigation measures will be developed through consultation between MDOT, SHPO, and any affected property owners. Archaeological surveys conducted within the Study Area found no evidence of historic or prehistoric artifacts. Based on these surveys, there is a low probability of finding any archaeological resources in the Study Area. There is one historic property, located at 2511 10th Avenue and known as the E.C. Williams House, that was recommended as eligible for the National Register of Historic Places. The E.C. Williams House may be affected by the City East Alternative and the Preferred Alternative. The Preferred Alternative would take the block that the E.C. Williams House resides and as a result, the home would have to be relocated. The City East Alternative would not take any of the property; however, the relocation of Pine Grove Avenue would bring traffic noise and glare closer to the E.C. Williams House. Potential mitigation measures may include creating a landscape buffer between the E.C. Williams House and the relocated Pine Grove Avenue, and/or designing the curve realignment to maximize the distance between the road and the house. A

discussion of potential mitigation of specific cultural resource sites is located in **Section 3.15 Cultural Resources.**

Any potential non-motorized crossing over the Black River Bridge will be considered by MDOT after local communities make adjacent connections a priority.

5.17 How are Hazardous/Contaminated Materials Mitigated?

The Study Team performed two Project Area Contamination Surveys (PACS) of the areas surrounding the existing Blue Water Bridge Plaza and the potential relocated plaza site for the Township Alternative. The purpose of these surveys was to locate and identify potential contaminated sites within or near to the potential areas of construction. Such sites would contain Recognized Environmental Conditions (RECs).



Vacant Gas Station on Pine Grove

City East Alternative: A total of 20 RECs were identified during the assessment of existing conditions. Eighteen of these sites could be affected by construction as part of the reconstruction of the existing plaza under the City East Alternative. Two sites would be impacted by reconstruction of the Water Street interchange.

City West (Preferred) Alternative: Of the 20 RECs that were identified during the assessment of existing conditions, 18 of these sites could be affected by construction as part of the reconstruction of the existing plaza under the Preferred Alternative. Two sites would be impacted by reconstruction of the Water Street interchange.

Township Alternative: The Township Alternative would potentially affect ten RECs that were identified during the assessment of existing conditions. Every one of these ten sites would potentially be affected by construction of the Township Alternative. None of these properties are on or near the site of the new plaza. The ten properties would be affected by improvements to local roadways under the Township Alternative, including the reconstruction of the Water Street interchange, Pine Grove Avenue, Hancock Street, and the M-25 Connector.

Further consideration of contaminated sites and hazardous materials in the Study Area will be necessary to ensure the safety of workers during construction, prevent any future migration of existing subsurface contaminants, and address potential liability associated with purchase of those parcels. Under either Alternative, a Phase II subsurface assessment will be needed to further investigate the contamination at the REC sites (20 under the City East and Preferred Alternative and ten under the Township Alternative). Depending upon the findings of the Phase II assessment, it may be necessary to perform further investigation or remediation.

Any structures acquired for the project should be tested for asbestos-containing materials and lead-containing materials before demolition. A Worker Health and Safety Plan will be prepared if any of these materials are identified.

MDOT will also coordinate with the MDEQ Water Bureau and the Waste and Hazardous Materials Division when limits of excavation or disturbance of bottom sediments is determined in areas of known river, stream, or lake bottom sediment contamination. Coordination could include testing of bottom sediments within the project area, reviewing results with the Water Bureau to determine if any contamination exists, and reviewing results with the Waste and Hazardous Materials Division to determine if any special disposal methods will be required.

Recycling programs will be used if they are provided by the community and do not compromise maintenance or security.

5.18 How are Surplus or Unsuitable Materials Disposed?

Unsuitable material

Can be any unwanted items leftover from clearing or preparing the site for construction such as tree stumps or broken concrete.

Surplus or unsuitable material generated by removal of structures, trees, peat, etc., must be disposed of in accordance with the following provisions designed to control the possible detrimental impacts of such actions:

1. All regulations of the MDEQ governing disposal of solid wastes must be complied with.

2. Inert debris may be used as a basement fill to a depth not less than two feet below the ground level if the basement is

not within the roadway cross-section. Debris used as fill must be covered with at least two feet of clean soil to fill voids. Basement walls are to be removed to ground level.

3. When surplus or unsuitable material is to be disposed of outside of the right-of-way, the contractor shall obtain and file with MDOT written permission from the owner of the property on which the material is to be placed. In addition, no surplus or unsuitable material is to be permanently disposed of in any public or private wetland area, watercourse, or floodplain. No temporary disposal of material will occur in any public or private wetland area, watercourse, or floodplain without prior approval (and permit) by the appropriate resource agencies and the Federal Highway Administration.

5.19 How will Traffic be Maintained During Construction?

Disruption of traffic in the construction area will be minimized to the extent possible. Although control of all construction-related inconveniences is not possible, motorist and pedestrian safety will be ensured by signing all construction areas. Access will be maintained to properties adjacent to the Study Area to the extent possible. Traffic will be maintained using both part-width construction techniques and the use of detour routes. Part-with construction techniques involve maintaining the traffic on one half of the roadway while the other half is being reconstructed. Detours would involve temporarily closing down certain roadways for construction while providing an alternate route of transportation.

Detailed plans will be developed during the design phase of construction with local officials. Informing the public of current and upcoming construction/traffic related concerns will be an important part of the construction process. Public awareness will be maintained throughout the project by addressing public concerns, and providing specific information such as duration and location of detours, lane closures, alternative routes, upcoming activities, and anticipated construction deadlines. This will be completed through the use of a Motorist Information Plan, which will provide as much information to visitors, motorists, area

residents, and business owners as possible through the use of temporary electronic message signs, the project website (www.michigan.gov/mdotstudies), and the toll-free project hotline (1-800-955-3515).

5.20 How will Construction Impacts to Surface Streets be Mitigated?

The contractors will be required to repair of all surface streets that are damaged as a result of being used as a detour or for equipment access. Upon completion of construction activities, roadway inspections will take place and permanent repairs will be made as necessary.

5.21 How will Public Utility Services be Maintained?

Water, sanitary sewer, gas, telephone, and electrical transmission lines adjacent to or crossed by the project may require relocation or adjustment. If relocations or adjustments are required, MDOT will coordinate with the affected utility company during design, and relocation will take place prior to construction if possible. The contractors will coordinate construction activities with the affected utility company.

5.22 What Permits will be Required for Construction?

Depending on the resources impacted, MDOT often must obtain various permits for construction activities. MDOT obtains these permits from various state, federal, and local agencies with jurisdiction over lakes, streams, drains, wetlands, threatened and endangered species, air quality, or other environmental resources. The following is a list of permits that MDOT will likely need to obtain for construction of a new plaza for the Blue Water Bridge.

State Permits:

- *Wetlands* - MDOT must obtain a permit from the MDEQ Land and Water Management Division for any wetlands disturbance, temporary as well as permanent. Permanent disturbances would include the placement of any fill material in wetlands. This permit is issued pursuant to the Clean Water Act, Section 404 of 1972 and Part 303,

Wetlands Protection of Michigan P.A. 451 Natural Resources and Environmental Protection Act, 1994, as amended.

- *Point Source Discharge of Stormwater* - MDOT must obtain coverage from the MDEQ Water Bureau for discharging stormwater into inland lakes, streams, or drains. This coverage is issued pursuant to Part 31 Water Resources Protection of P.A. 451, as amended and Section 401 of the Clean Water Act of 1972.
- *Fill in Floodplain* - MDOT must obtain a permit from the MDEQ Land and Water Management Division to place fill material within any part of a floodplain with a drainage area of two square miles or greater. This permit is issued pursuant to Part 31, Floodplain Regulatory Authority of P.A. 451, as amended.
- *Work Below Ordinary High Water Mark* - MDOT must obtain a permit from the MDEQ Land and Water Management Division for any work below the ordinary high water mark of any inland lake, stream, or drain including the placement of a temporary crossing, haul road, or construction access pad. This permit is issued pursuant to Part 301, Inland Lakes and Streams of P.A. 451.
- *Installation of Bituminous or Concrete Plants* - MDOT or its designated contractor must obtain a permit from the MDEQ Air Quality Division for the installation and use of bituminous or concrete plants during construction. This permit is issued pursuant to Part 55, Air Pollution Control of P.A. 451.

Federal Permits:

- *Black River and Adjacent Wetlands* - MDOT must obtain a permit from the United States Army Corps of Engineers for the placement of fill material in waters of the United States. This permit is issued pursuant to U.S. Section 404, Clean Water Act of 1972 and U.S. Section 10 River and Harbors Act of 1899.
- *Impacts to Navigable Waterways* - MDOT must obtain clearance from the United States Coast Guard for potential impacts to the Black River as a navigable waterway. This clearance is issued pursuant to U.S. Section 9 River and Harbors Act of 1899.

In addition to the above permits, MDOT will also have to provide notice of coverage to MDEQ for stormwater discharges during construction activities under the National Pollution Discharge Elimination System. MDOT has determined that no permits for threatened and endangered species or impacts to registered contaminated sites will be required for the project.

MDOT will develop final mitigation measures for the areas requiring the above permits in consultation with the appropriate resource agencies and will include them in the permit application.

5.23 Additional Mitigation or Modifications

The final mitigation package will be reviewed by division representatives on MDOT's project study team, in cooperation with concerned federal, state, and local agencies.

Some changes in the early mitigation concepts discussed in this document may be required when design begins. These mitigation concepts will be implemented to the extent possible. Where changes are necessary, they will be designed and field reviewed before permits are applied for and construction begins. Changes may also be necessary during the construction phase, but they will reflect the early mitigation intent. The preceding mitigation concepts are based on the best information available through June 2007.

Project Mitigation Summary "Green Sheet"

(DRAFT) August 2007

Draft Environmental Impact Statement
And Draft Section 4(f) Evaluation

Blue Water Bridge Plaza Study in the City of Port Huron
and Port Huron Township
St. Clair County, Michigan

This project mitigation summary "Green Sheet" contains the project specific mitigation measures considered at this time. An updated "Green Sheet" will be prepared and included in the Final Environmental Impact Statement (FEIS) and Record of Decision (ROD). These mitigation items and commitments may be modified during the final design, right-of-way acquisition or construction phases of this project.

I. Social and Economic Environment

a. ***Aesthetic and Visual Resources*** - The exact appearance of each Build Alternative is still conceptual. The Study Team plans to hold a series of workshops on Context Sensitive Solutions (CSS) during the Final EIS process, after a Preferred Alternative has been selected. Mitigation of aesthetic and visual impacts could come in many forms. Some of the more common measures include:

- Developing and applying corridor standards for selective vegetative clearing and thinning, earthwork, landscaping or other methods of screening
- Incorporating architectural features into the design of retaining walls, security walls, and other structures
- Utilizing directional lighting and creative berm concepts at the plaza, new welcome center, and along highway corridors
- Applying colors and/or textures to help soften the visual appearance of the proposed structures and hard surfaces

b. ***Noise*** - Based on the results of the noise analysis, MDOT intends to install noise barriers that are deemed feasible and reasonable. The noise barriers proposed west of the M-25 Connector between Hancock Street and the Black

River, and between Garfield Street and Hancock Street are feasible and reasonable for the City East or Township Alternatives, while the noise barrier west of I-94/I-69 and north of Lapeer Road is feasible and reasonable for the Township Alternative. If final design results in substantial changes in roadway design from currently modeled conditions, noise abatement measures will be reviewed.

c. ***Recreation*** – MDOT will coordinate with Port Huron Township regarding the access road for Township Park No. 1 and No. 2. Access to both parks will be maintained during all hours of operation. The existing landscape buffer between the parks and I-94/I-69 will remain. No material or equipment storage on park property will be allowed during construction.

The navigation channel in the Black River will be maintained under the I-94/I-69 Bridge to accommodate boaters using the City of Port Huron Riverside Boat Ramp.

II. Natural Environment

a. ***Stream Crossing*** – A Construction Staging Plan will be provided to the contractor that will define construction access to the Black River Bridge piers. The Construction Staging Plan will be prepared and reviewed with MDEQ prior to any Act 451, Part 31 (Floodplains) and Part 301 (Inland Lakes and Streams) permit application. Coordination regarding the Construction Staging Plan will also occur with the U.S. Army Corps of Engineers and U.S. Coast Guard prior to the submittal of federal permit applications. The plan will include soil erosion/sedimentation controls including dewatering operations, temporary causeway/access pad design, installation/removal phasing, and stream navigation requirements (signing and lighting). No work will be done in the Black River or Stocks Creek between March 15th and June 30th to provide protection for fish spawning. Work may be done behind an enclosed cofferdam installed prior to the start of the protection dates.

b. ***Wetlands*** – The City East and City West (Preferred) Alternatives would impact 3.24 acres of palustrine emergent wetland and 1.12 acres of palustrine forested wetland. The Township Alternative would impact 7.22 acres of palustrine emergent wetland and 2.94 acres of palustrine forested wetland. Using the 2 to 1 mitigation ratio for forested and 1.5 to 1 ratio for emergent, the City East and City West (Preferred) Alternatives would require a total of approximately 7.1 acres of wetland mitigation, while the Township Alternative would require a total of approximately 16.71 acres. The wetland mitigation site has not been selected at this time, but will be included in the FEIS. The wetland mitigation and monitoring plan will be part of any Act

451, Part 303 permit application to MDEQ.

c. ***Floodplains*** – The City East, Township and City West (Preferred) Alternatives would all require fill within the 100-year floodplain of the Black River. The City East and City West (Preferred) Alternatives would require approximately 625 cubic yards of fill. The Township Alternative would require approximately 2450 cubic yards of fill. The MDEQ requires compensatory storage if more than 300 cubic yards of fill material is placed in the 100-year floodplain.

To ensure that all environmental and hydraulic impacts associated with the floodplain crossings of the City West (Preferred) Alternative are minimized, further evaluation of crossing options will be conducted during the design phase. This will include an examination of bridge spans and approaches, median widths, and side slopes. The analysis will consider existing and proposed conditions, and will determine the necessary and proper bridge types, openings, lengths, and locations of abutments and piers, to minimize or eliminate floodplain impacts.

d. ***Water Quality*** - Roadway runoff will be treated by maximizing the use of vegetated buffers (300 foot minimum) for drainage conveyance and minimizing the direct discharge of bridge runoff. Disturbed sanitary sewer lines will be restored to pre-construction condition. Any disturbed groundwater wells will be properly abandoned.

Recycling programs will be used if they are provided by the community, and do not compromise maintenance or security

e. Threatened and Endangered Species - No work will occur in wetland areas adjacent to Stock's Creek between mid-October and the end of March in order to protect potential winter hibernating habitat for the spotted turtle. During construction, thorough searches will be conducted for the turtle within the work area as they nest in mid-June. Any turtles found will be relocated to an appropriate safe area.

III. Cultural Environment

a. Historic Resource – MDOT will relocate the E.C. Williams House if City West is selected as the Preferred Alternative. If City East is selected, feasible buffering and design options to shield the E.C. Williams House will be explored.

IV. Hazardous/Contaminated Materials

a. Project Contamination - A Project Area Contamination Survey (PACS) was performed for this project. Further investigation of contaminated sites and hazardous materials in the Study Area will be necessary to ensure the safety of workers during construction, prevent any future migration of existing subsurface contaminants, and address potential liability associated with the purchase of those parcels. Under the Build Alternatives, a Phase II subsurface assessment will be conducted at the REC sites (20 under City East and City West and ten under Township). Depending upon the findings of the Phase II assessment, it may be necessary to perform additional investigation or remediation.

Any structures removed for the project will be assessed for asbestos-containing materials and lead-containing materials before demolition. A Worker Health and Safety Plan will be prepared if any of these materials are identified.

V. Construction

a. ***Maintaining Traffic*** - A Motorist Information Plan (website and temporary electronic message signs) will be developed and implemented during construction to identify lane closures and alternate routes. Coordination with local officials will occur to facilitate emergency service and school bus routes. Access to residences and businesses within the project area will be maintained during construction.

CHAPTER 6

PUBLIC AND AGENCY COORDINATION

When an Environmental Impact Statement (EIS) is being prepared, the agencies proposing the project, in this case the Federal Highway Administration (FHWA) and the Michigan Department of Transportation (MDOT), are required to solicit ideas and input from people and organizations that may be affected by, or have regulatory authority over, the project. FHWA and MDOT have accomplished this through a variety of tools and methods that are described in this section. These tools and methods will continue to be used as this project progresses through design and construction.

Public Involvement is an important part of the study

6.1 How did the Study Team Coordinate with Federal and State Agencies?

Agreement and input is critical in order to proceed through the various stages of the Study. As a result an early effort to coordinate with federal and state agencies took place. Letters and preliminary study information were sent to these agencies in October 2002. The agencies are listed below and their letters of response are included in **Appendix D.1**.

- U.S. Customs and Border Protection (CBP)
- U.S. General Services Administration (GSA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (EPA)
- U.S. Coast Guard (USCG)
- U.S. Department of Agriculture (USDA)
- Natural Resources Conservation Service (NRCS)
- Michigan Department of Natural Resources (MDNR)
- Michigan Department of Environmental Quality (MDEQ)
- Michigan Department of Agriculture (MDA)
- Michigan State Historic Preservation Office (SHPO)

Notice of Intent to Prepare an EIS: The federal agency that is preparing an EIS needs to officially notify the public when the study will begin. The FHWA satisfied this requirement by publishing a *Notice of Intent* in the Federal Register. This notice was issued January 12, 2005 and published in the January 27, 2005 issue of the Federal Register (Vol. 70, No. 17,

Pg 3974). A copy of this Notice of Intent is located in **Appendix D.2**.

Scoping Meetings: The above referenced agencies were invited to three scoping meetings over the course of this study. The scoping meetings were focused on identifying key environmental issues to be considered for the project. An initial meeting was held on June 19, 2003 to describe the study and conduct a site tour of the plaza and surrounding area. A scoping information package was prepared as part of this meeting. A second meeting to present three alternatives and gain consensus from the group was held July 27, 2004. On July 19, 2005, a third meeting was held to discuss study updates, scheduling, and the need to convert the study from an Environmental Assessment document to a more detailed EIS.

Coordination with federal agencies

Federal Cooperating Agencies: Five of the above mentioned agencies were requested to be cooperating agencies, by FHWA. A cooperating agency typically has special authority or expertise over the construction of a project. There is enhanced communication and cooperation between cooperating agencies and the agency proposing the project. The following agencies were identified as federal cooperating agencies for this study: CBP, GSA, USACE, EPA, and USCG. Copies of the letters from these agencies accepting cooperating status are included in **Appendix D.3**.

The special relationships of the cooperating agencies to the Blue Water Bridge Plaza Study are as follows:

- CBP is the major tenant on the plaza and has authority to secure people and cargo crossing into the United States.
- GSA leases space from MDOT for all federal inspection agencies located on the plaza.
- USACE has permit authority for any improvements to the I-94/I-69 Black River Bridge due to its location in the 100-year floodplain.
- EPA has authority for ensuring the proposed project complies with the National Environmental Policy Act. If EPA determines that the action is environmentally unsatisfactory, it is required by Section 309 to refer the matter to MDEQ.

- USCG has permit authority for the I-94/I-69 Black River Bridge improvements related to boating safety and navigation clearances.

Federal Agency Meetings: In addition to the scoping meetings, several meetings were held with CBP and GSA to gain input on plaza operations and receive comments on the proposed alternatives. Details regarding the meetings are listed in **Table 6.1**.

Table 6.1 Federal Agency Meetings

Date	Location	Topic of Discussion
September 16, 2002	Port Huron, MI	Current plaza activities
November 12, 2002	Port Huron, MI	Plaza needs/opportunities
July 17, 2003	Port Huron, MI	Alternatives review
February 10, 2004	Lansing, MI	Alternatives review
April 22, 2004	Port Huron, MI	Alternatives review
September 9, 2004	Washington, DC	Alternatives refinement
December 2, 2004	Detroit, MI	Alternatives and traffic modeling
August 8, 2005	Indianapolis, IN	Security for Practical Alternatives
October 24, 2005	Port Huron, MI	Security for Practical Alternatives
February 13, 2006	Lansing, MI	Project Coordination with MDOT, FHWA, CBP, and GSA
June 12, 2006	Detroit, MI	Alternative development
August 24, 2006	Port Huron, MI	Alternative development

6.2 Stakeholders Advisory Committee

A Stakeholders Advisory Committee was formed to provide expertise and input on all pertinent issues related to the plaza study. The Advisory Committee consists of a core group of

stakeholders representing plaza inspection agencies, local and state officials, Canadian officials, private firms, and key representatives from the local community. A list of people invited to the Advisory Committee meetings is provided in **Appendix D.4**. The Advisory Committee held 13 meetings and was instrumental in: (1) defining the purpose of and need for the project outlined in **Chapter 1 Why Are Improvements Needed?**, (2) providing input on how best to involve the public in the study process, (3) developing ways to measure the effectiveness of the proposed alternatives, (4) reviewing and refining the proposed alternatives, and (5) sharing specific agency concerns.

What is a Charrette?

A charrette is a workshop to facilitate an open discussion between the stakeholders of a project, which typically uses a mixture of brainstorming and laying out of potential alternatives.

Initial Concepts Charrette: April 29, 2003, the Michigan Department of Transportation (MDOT) held a charrette with border crossing stakeholders for the Blue Water Bridge Plaza. A charrette is a workshop to facilitate open discussion and brainstorming on particular issues. The Initial Concepts Charrette was held at the St. Clair County Administration Building in Port Huron, Michigan. The charrette involved 47 people representing a wide variety of stakeholders, including representatives from:

Initial Concepts Charrette Photos

- CBP
- GSA
- U.S. Food and Drug Administration (FDA)
- USDA
- Blue Water Bridge Authority (BWBA), operator of the Canadian side of the crossing
- Canada Customs and Revenue Agency (CCRA)
- City of Port Huron
- St. Clair County Transportation Study (SCCOTS)
- Southeast Michigan Council of Governments (SEMCOG)
- Customs Brokers
- FHWA
- MDOT

The purpose of the Initial Concepts Charrette was to encourage communication and understanding between stakeholders, identify concepts that address study objectives, identify potential cost saving measures, and identify new issues of concern. **Appendix D.5** provides a summary of the charrette.

6.3 How did the Study Team Coordinate with Local Agencies?

A variety of local agencies participated in the Stakeholders Advisory Committee Meetings. In addition to those meetings, over 40 individual meetings were held with local agencies to understand agency issues and concerns and review proposed concepts. These meetings included the following agencies:

- St. Clair County
- City of Port Huron
- Port Huron Township
- Fort Gratiot Township
- St. Clair County Road Commission
- Economic Development Authority of St. Clair County
- City of Port Huron City Council
- Port Huron Area School District

Coordination with local agencies

At the request of the County and City, the Study Team met with local representatives monthly to discuss project issues. Additionally, a local Security and Emergency Management Task Force committee was created to focus on specific issues related to local security and emergency response.

Copies of letters from local agencies are contained in **Appendix D.6**.

6.4 How did the Study Team Coordinate with Canadian Officials?

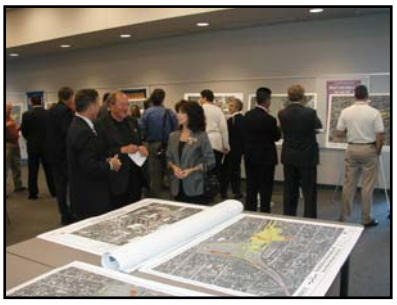
Canadian stakeholders were active participants in the review of the project and its alternatives. Canadian officials submitted several letters outlining their positions on the plaza study, supplied relevant reports concerning the operation of the Canadian side of the Blue Water Bridge crossing, and attended the Stakeholders Advisory Committee Meetings. **Appendix D.7** includes the letters submitted by Canadian officials.

August 13, 2003, MDOT held a Canadian agencies meeting that included the following agencies: the BWBA, the Ontario Ministry of Transportation, the Canadian Border Services Agency (CBSA), and Transport Canada. Discussion focused

on design alternatives for the plaza. Individual meetings were also held throughout the study with BWBA to discuss their issues and concerns in more detail.

6.5 How has the Study Team Involved the Public?

Key objectives of the public involvement process are to provide access to the study information, to obtain feedback and information from the public, and to build consensus among members of the general public. This was accomplished by using open forum meetings and a variety of tools to notify the public, explain the project, and obtain feedback.



Public Meeting #2

Public Information Meetings: A news release was issued to local media announcing the study and the kick-off public meeting. The kick-off news release was published February 27, 2003. The release resulted in editorials in local newspapers and radio coverage on the study.

Public Meeting #3

The Study Team held six public information meetings to provide study information and receive comments from the general public. MDOT notified people by issuing press releases in the local newspaper, conducting interviews with local media, and mailing informational brochures to over 400 households located in the vicinity of the plaza. Brochures for each meeting were also distributed to key city, township, and county offices and to churches in the Study Area. All of the meetings were held at transit and disabled accessible facilities in Port Huron, Michigan. The meetings were held in a large hall using an open forum format. Members of the public could visit stations and discuss different aspects of the proposed project (study process, traffic, environmental constraints, etc.) with project team members. All attendees were encouraged to fill out comment forms. **Table 6.2** provides the details of each of the public information meetings.

Table 6.2 Public Meetings Held

Meeting	Date	Location	Number of People Who Signed In	General Purpose
Public Meeting No. 1	March 13, 2003	Port Huron Municipal Office Center	70	Introduce the study and study process
Public Meeting No. 2	September 23, 2003	Michigan Technical Education Center	287	Present Illustrative Alts.
Pubic Meeting No. 3	May 17, 2004	Michigan Technical Education Center	146	Present Updated Alts.
Public Meeting No. 4	February 9, 2005	St. Clair County Community College	213	Present Refined Alts.
Public Meeting No. 5	September 26, 2006	Girl Scout Building	224	Present new Alt. City West
Public Meeting No. 6	December 7, 2006	Girl Scout Building	118	Present Alts. for I-94/I-69 Corridor

Public Information Resources: Additional tools were used to provide the general public with information on the plaza study and to receive comments. These included: (1) mailing newsletters prior to each public information meeting to all individuals on the project mailing list, (2) providing a toll-free phone number (1-800-955-3515) to call with any questions concerning the study, (3) establishing a web site located at www.michigan.gov/mdotstudies that contained study information, updates, and a link for e-mail feedback, and (4) issuing press releases through the local media. The web site will remain active through the review and approval of the EIS.

The public involvement process generated over 600 public contacts that were entered into the study database. The Study Team responded to approximately 115 public phone calls and 113 letters and e-mails related to the study, through May 2007.

Community Involvement Workshop

Community Involvement Workshop

Community Involvement Workshops: Three Community Involvement Workshops were held to assist the Study Team in incorporating the values and visions (aesthetics, land use, community etc.) of Port Huron area residents into the planning process. The purpose of these workshops were to gather information about what characteristics participants valued in their community and neighborhood and how they would like to see the area surrounding the project look and feel. Two workshops focused on the on-site Study Area and the third workshop focused on the off-site Study Area. Four additional Community Involvement Workshops are planned for the Blue Water Bridge Project. **Table 6.3** provides the details of each of the Community Involvement Workshops.

Meetings with Specific Groups: Informal meetings were held with individuals or groups that had specific concerns or interests in the study. These meetings allowed for an exchange of ideas and a focus on issues of special concern. Meetings were held with U.S. Representative Candice Miller, State Senator Jud Gilbert and staff members for State Representative Steve Ehardt and U.S. Senators Debbie Stabenow and Carl Levin. Following their election, State Representatives Phil Pavlov and John Espinoza attended several project meetings. The Study Team also met with the Ross Bible Church, local Chambers of Commerce, several local business owners, and customs brokers.

In the spring 2007 the Study Team began to hold open office hours in the MDOT Port Huron TSC on the first and third Friday of each month to answer any questions the public had about the Blue Water Bridge Plaza Study. The public could request a specific appointment time or drop in to the TSC between 10 am and 2 pm.

Formal Public Comment: When the Draft EIS is available for review the public will be notified and a formal comment period will begin. This formal comment period will last a minimum of 45 days and will include a formal Public Hearing.

Table 6.3 Community Involvement Workshops Held

Meeting	Date	Location	Number of People Who Signed In	General Purpose
Community Involvement Workshop No. 1	June 29, 2006	Girl Scout Building	92	Discuss and identify important characteristics of the Study Area
Community Involvement Workshop No. 2	July 27, 2006	Girl Scout Building	86	To generate a vision for the future of the Study Area
Community Visioning Workshop No. 3	March 07, 2007	Girl Scout Building	84	To produce a transportation system built on and supported by community values

Local Project Office Hours in Port Huron: Beginning in March 2007 MDOT held regular office hours on the first and third Friday of each month from 10:00 am-2:00 pm. Members of the Study Team were available to answer questions regarding the ROW acquisition process, the NEPA process, and answer other project related questions.

CHAPTER 7

LIST OF PREPARERS

Preparers and Reviewers

Name	Education and Experience	Primary Responsibilities
Wilbur Smith Associates, Inc.		
Todd Davis, AICP	B.S. Environmental Science 17 years transportation planning experience	Project Manager, Public Involvement Coordinator, Environmental Planning and QA/QC
Doug LaVoie, P.E.	B.S. Civil Engineering 17 years transportation engineering, and planning experience	Engineering Lead, Plaza Site Design, Public Involvement, QA/QC
Chris Nazar, AICP	B.A. Economics and Urban Studies M.S. Urban Planning 7 years economics and transportation planning experience	Lead Transportation Planner, Economic Analysis, Public Involvement, Purpose and Need, Affected Environment and Consequences
Kirk Haybarker, AICP, RLA	B.S. Landscape Architecture/Planning 22 years transportation and environmental planning experience	Consultant Project Director, Project Coordination, QA/QC
Paul Hershkowitz	B.A. Sociology 33 years traffic and transportation planning experience	Lead Traffic Analyst
Adrian Stroupe, AICP	B.A. Geography 15 years transportation and environmental planning experience	Environmental Planning, Project Coordination, and QA/QC
Lindsay Lee	B.S. Geography 2 years transportation planning experience	GIS Exhibits QA/QC
Nicole McCleary	B.A. Psychology M.A. Urban Planning 3 years planning experience	Social and Community Analysis, Public Involvement, Affected Environment and Environmental Consequences
Rhonda Vance	B.S. Communications 9 years experience in public affairs	Project Coordination, QA/QC
Saurabh Shukla	B.S. Architecture M.S. Urban and Regional Planning 1 year of transportation planning experience	Purpose and Need, Traffic, FEIS production

Name	Education and Experience	Primary Responsibilities
Doug Zang	B.A. Biology 14 years experience in NEPA analysis for transportation projects	Air and Noise Analysis, Environmental Consequences, QA/QC
Randy Rowson, AICP	M.A. Urban and Regional Planning 6 years transportation planning experience	Traffic Engineering Highway/ Intersection Analysis
Matt Hunter, P.E.	B.S. Civil Engineering 4 years engineering experience	Roadway Designer, Border Wizard
David Kent, P.E.	B.S. Civil Engineering 11 years engineering experience	Roadway Design Engineer
Randy Day	Engineering Technician 32 years experience	Structural Support and 3D Visualization
Mark Helinski, P.E.	B.S. Civil Engineering 14 years bridge design engineering experience	Bridge Design and Inspection
Matt Wendling, P.E.	B.S. Civil Engineering 10 years experience in bridge design and inspection	Bridge Design and Inspection
Traci Sandefeur	B.S. Anthropology 14 years experience in cultural resources planning	Archeological Investigations
Howard Beverly	B.A. Anthropology M.A. Anthropology 11 years experience	Archeological Investigations GIS Exhibits
Robert Ball	B.A. Anthropology M.A. Historic Preservation 10 years experience in archeology and cultural resources	Historic Architectural Survey, Cultural Resources
HNTB Michigan, Inc.		
Thomas Weston, P.E.	B.S. Civil Engineering 16 years transportation engineering experience	Roadway Design Engineer
John Jaeckel, P.E.	B.S. Applied Science and Engineering 29 years air quality and noise analysis experience	Environmental Quality Engineer, Air and Noise analysis
Paul Carr, P.E.	B.S. Civil Engineering 12 years transportation engineering exeperience	Roadway Design Engineer
Suheil Acra	B.S. Civil Engineering M.S. Civil Engineering 12 years air quality and noise analysis experience	Environmental Quality Engineer, Noise Analysis

Name	Education and Experience	Primary Responsibilities
Sear Brown Group, Inc. (A Stantec Company)		
William Holthoff	B.S. Civil Engineering M.S. Civil Engineering 28 years of transportation engineering	Lead Plaza Design/User Agency Coordinator
Tawney Farmer, P.E.	B.S. Civil Engineering 19 years experience in site engineering	Plaza Site Engineering
KLD Associates, Inc.		
Mark Yedlin, P.E.	B.S. Civil Engineering M.S. Transportation Engineering 29 years experience in transportation engineering and traffic simulation modeling	Lead for Traffic Simulation Analyses
Reuben Goldblatt, P.E., PTOE	B.S. Aerospace Engineering M.S. Aeronautics M.S. Transportation Planning 33 years experience	Simulation Analysis
Lakshmi Kanth R Naredla, EIT	B. Tech. Civil Engineering M.S. Civil Engineering 3 years experience	Traffic Analysis – Border Wizard
Wetland and Coastal Resources, Inc.		
Stu Kogge, PWS	B.S. Fisheries and Wildlife M.S. Fisheries and Wildlife 15 years wetland studies experience, 14 years threatened and endangered species experience	Senior Wetland and Aquatic Biologist
Mike Nurse, PWS	B.S. Fisheries and Wildlife M.S. Fisheries and Aquatic Biology 13 years wetland studies and threatened & endangered species experience	Wetland and Aquatic Biologist
Soils and Materials Engineers, Inc.		
Larry Heinig, P.E.	B.S. Civil Engineering M.S. Civil Engineering 41 years engineering experience	Geotechnical Engineering
Caryn Owens	B.S. Environmental Engineering 4 years environmental engineering experience	Hazardous Material Investigation

Name	Education and Experience	Primary Responsibilities
Michigan Department of Transportation (MDOT)		
Matt Webb, AICP	B.S. Resource Development 10 years transportation planning experience	MDOT Project Manager
Paul McAllister	B.S. English M.A. Anthropology 25 years experience in NEPA project analysis with MDOT	MDOT NEPA Project Coordinator/Project Manager
Lloyd Baldwin	M.S. Historic Preservation 12 years experience	MDOT Environmental Review and Cultural Resources
Eric Dhanak, P.E.	B.S. Civil Engineering 22 years transportation engineering experience	MDOT Traffic and Safety
Jeff Edwards, AICP	M.A. Landscape Architecture 12 years planning experience	MDOT Transportation Planner, Metro Region
Tom Jay	B.A. Business Administration 27 years real estate experience	MDOT Region Real Estate Manager
Robert Parsons	B.S. Interpersonal and Public Communication 25 years professional communications experience	MDOT Public Hearings Officer, public hearing coordination and certification
Paul Sander, SR/WA	B.D.E. State of Michigan 31 years of transportation right-of-way experience	MDOT Real Estate Analysis
Michael Szuch, P.E.	B.S. Civil Engineering 20 years experience in the construction, engineering and public works fields	MDOT Blue Water Bridge Manager
Edmund Waddell	B.S. Urban Planning M.S. Transportation Planning 23 years experience	MDOT Transportation Planner, Special expertise in project level traffic analysis, project alternative analysis, and development
Paul Wisney, P.E.	B.S. Civil Engineering 22 years transportation engineering experience	MDOT Engineering Lead
Larry Young P.E.	B.S. Civil Engineering 21 Years MDOT experience	MDOT Port Huron TSC Manager
Stephanie Aldighieri, P.E.	B.S. Civil Engineering M.S. Civil Engineering 8 years traffic engineering experience	Traffic Analysis

CHAPTER 8

DISTRIBUTION LIST

The Draft Environmental Impact Statement is being distributed to the following federal, state, regional, and local agencies and interested parties for their review and comment.

Federal Agencies

- Advisory Council on Historic Preservation
- U.S. Army Corps of Engineers, Detroit District
- U.S. Coast Guard, Ninth District, Cleveland, OH
- U.S. Customs and Border Protection, Port Huron, MI
- U.S. Customs and Border Protection, Indianapolis, IN
- U.S. Department of Agriculture, Natural Resource Conservation Service, Michigan State Conservationist
- U.S. Department of Commerce, NEPA Coordinator, Washington, D.C.
- U.S. Department of Energy, Office of NEPA Project Assistance, Washington, D.C.
- U.S. Department of Health and Human Services, Center for Disease Control
- U.S. Department of Homeland Security, Washington, D.C.
- U.S. Department of Housing and Urban Development, Area Director
- U.S. Department of Interior, Bureau of Indian Affairs, Area Director, Fort Snelling, MN
- U.S. Department of Interior, Bureau of Indian Affairs, Michigan Agency, Sault Ste. Marie, MI
- U.S. Department of Interior, Fish and Wildlife Service, East Lansing Field Office
- U.S. Department of Interior, National Park Service Midwest Region
- U.S. Department of Transportation, Federal Aviation Administration, Michigan Section
- U.S. Department of Transportation, Federal Highway Administration, Midwestern Resource Center, Olympia Fields, IL
- U.S. Environmental Protection Agency, Filing Section, Washington, D.C.
- U.S. Environmental Protection Agency, Region 5, Chicago, IL

- U.S. Federal Emergency Management Agency, Region 5, Chicago, IL
- U.S. General Services Administration, Great Lakes Region, Chicago, IL

U.S. Senators and Representatives

- Senator Debbie Stabenow, MI
- Senator Carl Levin, MI
- Representative Candice Miller, 10th District, MI

State Senators and Representatives

- Representative Daniel Acciavatti, District 32, MI
- Representative Phil Pavlov, District 81, MI
- Representative John Espinoza, District 83, MI
- Senator Jud Gilbert, District 25, MI

Canadian Agencies and Local Jurisdictions

- Blue Water Bridge Authority
- Canada Border Services Agency, Ottawa, ON
- Ontario Ministry of Transportation, London, ON
- Transport Canada, Ottawa, ON
- City of Sarnia, ON
- Village of Point Edward, ON

State Agencies, Michigan

- Michigan Department of Agriculture
- Michigan Economic Development Corporation
- Michigan Department of Environmental Quality
- Michigan Department of Community Health
- Michigan Department of History, Arts, and Library, State Historic Preservation Officer
- Michigan Department of Natural Resources
- Michigan Department of Transportation
- Michigan Environmental Science Board
- Michigan Family Independence Agency
- Michigan State Housing Development Authority

Local Jurisdictions and Agencies, Michigan

St. Clair County

- St. Clair County Road Commission
- St. Clair County Board of Commissioners

- St. Clair County Drain Commissioner
- St. Clair County Transportation Study
- St. Clair County Clerk
- St. Clair County Economic Development Department
- St. Clair County Emergency Services/Management

City of Port Huron

- City of Port Huron Office of the City Engineer
- City of Port Huron Office of the City Manager
- City of Port Huron Office of the Director of Finance
- City of Port Huron Office of the Fire Chief
- City of Port Huron Police Department
- City of Port Huron Planning and Development
- City of Port Huron Council/Clerk

Townships

- Port Huron Township
- Fort Gratiot Township
- Kimble Township

Other Agencies and Interest Groups

- Canadian / American Border Trade Alliance
- Clean Water Action
- DTE Energy Company
- Economic Development Alliance of St. Clair County
- Great Lakes Trade Corridor Association
- Michigan Environmental Council
- Michigan Gas Utilities
- Michigan Infrastructure & Transportation Association
- Michigan Municipal League
- Michigan Townships Association
- Michigan United Conservation Clubs
- National Wildlife Federation, Great Lakes Chapter
- Port Huron Area Public School District
- Port Huron Chamber of Commerce
- Sierra Club, Mackinac Chapter
- Southeast Michigan Council of Governments
- West Michigan Environmental Action Council
- Ziibiwing Cultural Society

CHAPTER 9

GLOSSARY OF TERMS

100-Year Flood Elevation: The 100-year flood elevation is defined by the Federal Emergency Management Agency (FEMA) as the flood elevation that has a one-percent chance of being equaled or exceeded (inundated) in any given year. Thus, despite its name, a 100-year flood could occur more than once in a relatively short period of time. See also floodplain.

Air Quality Index (AQI): The AQI is a guide for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health concerns you should be aware of. The AQI focuses on health effects that can happen within a few hours or days after breathing polluted air. The U.S. Environmental Protection Agency (EPA) uses the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, USEPA has established national air quality standards to protect against harmful health effects.

Alternative: Alternatives are different options under consideration for a project. By evaluating the impacts associated with different Alternatives, a decision can be made as to which one will be the "Preferred Alternative" or "Recommended Alternative." There have been a number of Alternatives considered as part of this project, and all the terms below are defined separately as well:

- Illustrative Alternatives
- No-Build Alternative
- Build Alternatives (City East, City West, Township)

American Association of State Highway and Transportation Officials (AASHTO): A nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico whose primary goal is to foster the development, operation, and maintenance of an integrated national transportation system.

American Society for Testing and Materials (ASTM): Founded in 1898, ASTM is a nonprofit organization providing standards that are accepted and used in research and development, product testing, quality systems, and commercial transactions around the globe. In over 130 varied industry areas, ASTM standards serve as the basis for manufacturing, procurement, and regulatory activities.

Annual Average Daily Traffic (AADT): The average number of vehicles passing a fixed point on a roadway in a 24-hour time frame. To reflect daily variation over time, AADT averages the daily traffic volumes over the course of a year. Used as a measure of traffic volume on a roadway. AADT is essentially the yearly traffic volume divided by 365.

Archaeological Site: The location of past cultural activity which could be used to describe and explain the nature and evolution of cultural systems; a defined space with mainly continuous archaeological evidence. Most archaeological resources are below ground level and yield information important in history or pre-history.

Architectural Resource: A building or other structure with potential historic significance based on its age, type, or its association with a person(s) or event(s). Such a property may have the distinctive characteristics of a type, period, or method of construction or may represent the works of a master or may possess high artistic values.

Area of Potential Effect (APE): In the context of cultural resources, the APE is the geographic area or areas within which a project may directly or indirectly cause alterations in the character or use of historic or archaeological resources, if any such properties exist. The area of potential effect is influenced by the size and nature of a project and may be different for different kinds of effects caused by the project.

Blue Water Bridge Authority (BWBA): The Canadian portion of the Blue Water Bridge is owned and operated by Blue Water Bridge Authority (BWBA). The BWBA was created as a corporation in 1964 by the Blue Water Bridge Authority Act and is responsible for the Canadian plaza operations, maintenance of the Canadian side of the bridge, capital infrastructure improvements, and toll collection. Specifically, the BWBA is responsible for the toll collection for westbound traffic (Canada to United States) and the provision of toll collection booths, Customs & Immigration booths, and bridge capacity.

Build Alternatives: A collective description of all Alternatives that include physical construction and therefore are distinct from the No-Build Alternative. For this document, the Build Alternatives are the City East, City West, and Township Alternatives.

Canada Border Services Agency (CBSA): Created December 12, 2003, the CBSA is responsible for providing integrated border services that support national security priorities and facilitate the free flow of persons and goods, into Canada including animals and plants, which meet all legislated requirements under the program legislation.

Clean Air Act Amendments (CAAA): The CAAA is legislation designed to curb three major threats to the nation's environment and to the health of Americans: acid rain, urban air pollution, and toxic air emissions. It called for establishing a national permits program to make the law more workable, and an improved enforcement program to help ensure better compliance with the Act. The original Clean Air Act of 1970 was last amended in 1990.

Clean Water Act: The Clean Water Act provides for comprehensive federal regulation of all sources of water pollution. It prohibits the discharge of pollutants from non-permitted sources.

Combined Sewer Overflows (CSOs): Combined sewer systems are an older design of sewers used in the late 19th and early 20th century. Because these systems collect rainwater runoff,

domestic sewage, and industrial wastewater in the same pipe, high water levels from rain events can result in sewage and wastewater to be discharged as CSOs into lakes and streams. Municipal utilities across the country have been upgrading their sewer systems in recent decades to separate storm water from sewage and wastewater, which are treated separately.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Created in 1980, it is also known unofficially as "Superfund." CERCLA provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. By creating the designation of "Superfund" sites, CERCLA established provisions for the liability, use, and funding for remediation of hazardous waste sites, particularly when no responsible party could be identified.

Congestion: The level at which transportation system performance and delay is no longer acceptable due to traffic interference. The level of acceptable performance may vary by type of transportation facility, geographic area, and/or time of day.

Controlled Access: This is the regulated limitation of access into (ingress) and out of (egress) properties abutting a roadway. A controlled access roadway has few (or no) driveways, may be physically separated by a median, and intersections with crossroads are widely spaced. A freeway would have limited access with access to and from the roadway limited to interchange ramps.

Cross-Section: Depicts the physical dimensions of a roadway facility as seen from a driver's perspective, including lane, shoulder, median, and typical right-of-way widths.

Cultural Resources: A location, building, structure, or place with potential historic or archaeological significance.

Cumulative Impacts: The impact on the environment which results from the incremental impact of action(s) when added to other past, present, and reasonably foreseeable future actions.

Customs and Border Protection: U.S. Customs and Border Protection (CBP) is the unified border agency within the Department of Homeland Security (DHS). CBP combined the inspection workforces and broad border authorities of U.S. Customs, U.S. Immigration, Animal and Plant Health Inspection Service and the entire U.S. Border Patrol. CBP's role is to manage, control and protect the Nation's borders, at and between the official ports of entry. CBP is the lead agency that inspects border crossers and cargo on the United States Plaza at the Blue Water Bridge.

Design Loading: The amount of weight a bridge is designed to hold.

Design Hour Volume (DHV): An hour with traffic volumes that represent a reasonable value for designing the geometric and control element of a facility.

Design Speed: A speed used to design the curvature and grades of a highway, taking into account the composition and volume of traffic. To ensure safe operations, it is typically desirable for engineers to choose a design speed that equals or exceeds the anticipated posted speed, and complements the highway type, setting, functional classification, traffic volume, and terrain.

Direct Impacts: A direct impact is an impact caused by a project that occurs at the same place as the project and at the same time as the project is implemented, i.e. is a direct result of the project.

Diverge: A movement in which a single lane of traffic separates into two lanes without the aid of traffic control devices such as when vehicles exit a freeway.

Draft Environmental Impact Statement (DEIS): See Environmental Impact Statement.

Endangered Species: Endangered Species are any species of animal or plant life that is in danger of extinction throughout all or a significant part of its range. Species can be designated "endangered" by either the U.S. Fish and Wildlife Service or a state's Natural Heritage program. With this designation comes legal protection at the federal level (Endangered Species Act) and/or the state level. Species can also be designated by state or federal government as Threatened Species or Special Concern Species for species with populations that are somewhat less in jeopardy than endangered species.

Environmental Consequences: The Environmental Consequences discussion in an Environmental Assessment (EA) or Environmental Impact Statement (EIS) assesses the anticipated effects of the proposed project alternatives on all possible resources (air quality, wildlife, wetlands, etc.) that may be affected by the project. This discussion compares and contrasts the impacts associated with all alternatives, including the No-Build Alternative.

Environmental Impact Statement (EIS): An environmental document that is prepared when it is initially determined that the action/project may cause significant impacts to the environment, when environmental studies and early coordination indicate significant impacts, or when review of a previously prepared environmental assessment indicates that the impacts anticipated to result from the project may be significant. A Draft EIS (DEIS) compares all reasonable alternatives to the proposed project and summarizes the studies, reviews, consultations, and coordination required by legislation and Executive Orders to the extent appropriate at the draft stage in the environmental process. A Final EIS (FEIS) identifies and addresses the social, economic, and environmental impacts of a Preferred Alternative and addresses public comments received during the formal public commenting period as well as the public comments received throughout the NEPA process. After publishing the Draft and Final EIS, the NEPA process concludes with a Record of Decision (ROD).

Facility: Any type of transportation infrastructure such as highways, local roads, transit centers, etc. that is used to move people and goods.

Family Independence Agency (FIA): The FIA is Michigan's public assistance, child and family welfare agency directing the operations of public assistance and service programs through a network of over 100 county family independence agencies in every county in Michigan.

Farmland Protection Policy Act (FPPA): The purpose of FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. FPPA ensures, to the maximum extent practicable, that federal programs are administered in a manner that is compatible with state, unit of local government, and private programs to protect farmland.

Farmland and Open Space Preservation Program: This program enables a farm owner to enter into a development rights agreement with the state, ensuring that the land remains in an agricultural use for a minimum of ten years and that the land is not developed in a non-agricultural use.

Farmlands of Local Importance: The Natural Resources Conservation Service defines these farmlands as "those lands that are nearly Prime Farmland and that economically produce high yields when treated and managed according to modern farming methods. Some may produce as high a yield as prime farmlands, if conditions are favorable".

Federal Highway Administration (FHWA): Division of the U.S. Department of Transportation which funds highway planning and construction programs and is headquartered in Washington, D.C., with field offices located across the United States. The FHWA provides expertise, resources, and information to continually improve the quality of our nation's highway system and its intermodal connections. The Federal-Aid Highway Program is the main program through which the FHWA performs its mission. The Federal-Aid Highway Program provides federal financial assistance to the States to construct and improve the National Highway System, urban and rural roads, and bridges.

Final Environmental Impact Statement (FEIS): See Environmental Impact Statement.

Floodplain: Any land area susceptible to being inundated by floodwaters from any source.

Food and Drug Administration (FDA): The FDA is one of several federal agencies that work cooperatively with Customs and Border Protection to determine if foreign goods should enter into the United States. FDA reviews imported entries of foods, drugs, medical devices, biologics, cosmetics, as well as a number of other products that fall under FDA jurisdiction. FDA helps to assure that imported food products are safe and wholesome, drugs and devices are safe and effective and that all other imported FDA regulated products meet the laws and requirements of the United States.

Free and Secure Trade Program (FAST): This program partners the United States and Canadian governments with the private sector to ensure a secure supply chain for low risk goods. FAST offers expedited clearance to those carriers, drivers, and importers who have registered and are pre-authorized. For low risk goods being imported from Canada into the U.S. by a pre-authorized importer, a pre-authorized carrier, and a registered driver, the carrier provides Customs and Border Protection (CBP) with an electronic transmission of limited data in advance of the arrival of the shipment at the border. When the shipment arrives at the border, it is processed through dedicated lanes where the driver will present his registration card and the CBP officer uses a bar code or transponder to identify the shipment. FAST opened at the Blue Water Bridge in December 2002.

Freeway: A divided highway for through traffic with controlled access. All crossings of the freeway by other roadways are vertically grade-separated (i.e. bridges carry the freeway above the other roadway or vice versa) and all access to the roadway is provided exclusively by interchange ramps that merge with the freeway traffic.

General Services Administration (GSA): The General Services Administration (GSA) is a federal agency created by Congress to improve government efficiency and effectiveness. GSA provides office space, courthouses, warehouses, laboratories, and border stations, and provides the protection services necessary to make these facilities secure.

Gore Area: The sharply-angled area located immediately between the left edge of a ramp pavement and the right edge of the roadway pavement at a merge or diverge area.

Gamma Ray Inspection Technology (GRIT): GRIT is a gamma-ray imaging system used to non-intrusively inspect freight contained on and in trucks, cargo containers, and passenger vehicles. GRIT allows operators to view the gamma-ray images on a video monitor to quickly and efficiently identify voids, false walls or ceilings, and other secret compartments typically associated with the transportation of drugs, explosives and weapons.

Habitat: An area that provides an animal or plant with adequate food, water, shelter, and living space.

Hazardous Materials: Substances or materials capable of posing unreasonable risk to health, safety and property when transported in commerce, or when encountered in underground contamination.

Historic Resources: Historic resources are properties that may possess potential historic significance based on its age, type, or its association with a person(s) or event(s). Such a property may have the distinctive characteristics of a type, period, or method of construction or may represent the works of a master or may possess high artistic values.

Hydraulic Influence: The hydraulic influence is the area that has a change in water levels because of a structure blocking the normal river flow.

Hydric Soils: A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to favor the growth of wetland plants.

Illustrative Alternatives: Preliminary concepts developed at the onset of a transportation planning project. Illustrative Alternatives are typically very conceptual by nature and are intended to examine all reasonable alternatives to address the transportation needs of the study area, prior to detailed study to identify their feasibility.

Impacts: Effects which occur as a result of implementing a transportation improvement. Direct impacts most commonly occur when proposed right-of-way actually crosses a resource in question such as a residence, business, wetland, or other regulated resources. Impacts can also be indirect impacts and can be part of a cumulative impact.

Indirect Impacts: Indirect impacts are caused by the project and are later in time or farther removed in distance than direct impacts, but are still "reasonably foreseeable."

Infrastructure: Term used to describe the physical assets of a society or community including roads, bridges, transit facilities, bikeways, sidewalks, parks, sewer/water systems, communications networks, and other capital facilities.

Invasive Species: Invasive species are non-native plants or animals that are introduced far from their original range, and become more successful at competing with native species for space and resources.

Land Evaluation Site Assessment (LESA): LESA is a point-based approach for rating the relative importance of agricultural land based upon specific measurable features.

Land Use: The way specific portions of land or the structures on them are used or planned for future use. Land use is typically based on local zoning guidelines and long term land use plans. Example land uses include commercial, residential, industrial, retail, agricultural, vacant, etc.

Limited Access Facility: A freeway facility that does not have driveway access or roadway intersections. Access is limited to freeway interchanges.

Median: A barrier, often found on multi-lane roadways or freeways, which provides separation distance between opposing traffic movements. A median can consist of either a grass or natural setting typical of a rural cross-section, or a concrete wall or guardrail barrier which is typical of an urban setting.

Merge: A movement in which two separate lanes of traffic combine to form a single lane without the aid of traffic signals or other right-of-way controls. An example of a merge is traffic merging or entering onto a freeway from an on-ramp.

Michigan Department of Environmental Quality (MDEQ): The state agency responsible for review of any wetland, floodplain, potentially contaminated sites, air quality, and/or water quality impacts.

Michigan Department of Natural Resources (MDNR): The state agency responsible for review of state threatened and endangered species, parkland, and fisheries impacts.

Michigan Department of Transportation (MDOT): The state agency responsible for planning, construction, and maintenance of all interstate, U.S., and state highways, bridges, and other modes of transportation within the State of Michigan.

Mitigation: Actions provided to avoid, minimize, or compensate the negative effects of a project.

Mobile Source Air Toxics (MSAT): Regulated by the EPA, MSATs are known as "hazardous air pollutants." Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

National Ambient Air Quality Standards (NAAQS): Air quality standards set by the U.S. Environmental Protection Agency for pollutants considered harmful to public health and the environment.

National Environmental Policy Act (NEPA): Federal act passed in 1969 which requires the assessment of the social, economic, and environmental impacts that a federally funded or federally permitted project might cause. This includes the identification of the purpose of and need for the project, and evaluation of alternatives to minimize resulting impacts.

National Pollution Discharge Elimination System (NPDES): The national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of Clean Water Act.

National Register of Historic Places (NRHP): The NHRP is the nation's official list of cultural resources worthy of preservation. This list was established under the National Historic Preservation Act of 1966 and is administered by the Department of the Interior.

Natural Resources Conservation Service (NRCS): The federal agency responsible for providing leadership in a partnership effort to help people conserve, maintain, and improve our

natural resources and environment. NRCS was formerly known as the Soil Conservation Service.

Network: A transportation system with its many roadways and routes often showed either graphically or mathematically.

NEXUS: NEXUS is a joint program that has been implemented with the cooperation of the American and Canadian governments and is now being expanded nationally.

Participants in the NEXUS program are approved by both the U.S. and Canada as low-risk, pre-approved travelers, enjoying a simplified entry process while traveling back and forth across the U.S./Canada border.

NEXUS pass holders use dedicated lanes at border crossings, and are not regularly subjected to the usual customs and immigration questioning. These lanes are provided in an effort to reduce traffic congestion and delays at bridge and land crossings while maintaining a safe and secure border.

Non-Attainment Area: A designation by the Environmental Protection Agency of any area in the United States failing to meet the National Ambient Air Quality Standards (NAAQS).

Non-Motorized Transportation: Bicycles, roller blades, running, walking, wheelchairs, scooters, sled dogs, etc.

North American Free Trade Agreement (NAFTA): A pact that calls for the gradual removal of tariffs and other trade barriers on most goods produced and sold in North America. NAFTA became effective in Canada, Mexico, and the United States January 1, 1994. NAFTA forms the world's second largest free-trade zone, bringing together 365 million consumers in Canada, Mexico, and the United States in an open market.

Peak Hour: The 60-minute period in the AM or PM in which the largest volume of travel is generally experienced on a roadway segment (e.g. rush hour).

Port: A United States port of call is designated to accept and release entries of merchandise, collect duties and enforce the various provisions of Customs laws. The Blue Water Bridge Plaza is officially a port of entry.

Practical Alternative: Practical Alternatives are developed from refinements made to the initial Illustrative Alternatives. These alternatives are subject to increased levels of traffic, engineering, social, economic, and environmental analysis as well as public and agency comment to determine if they are capable of meeting the purpose and defined goals of the project.

Preferred Alternative: The Preferred Alternative is selected from the Practical Alternatives after extensive engineering, social, economic, and environmental analysis. It could include

components of several Practical Alternatives in any combination found to be the most beneficial.

Primary Inspection: The first point of contact or set of inspection booths at a border station for both trucks and cars is called Primary Inspection. If all of a truck's paperwork is in order and was processed ahead of time, the truck is a "Line Release" truck and this may be its only stop. If the paperwork is not in order, the carrier must visit a broker, or if the carrier is selected for examination, the truck will be directed to Secondary Inspection.

As individuals enter the U.S. or Canada they will be stopped and questioned prior to entry into that country at Primary Inspection. Each person in the vehicle must be able to prove their citizenship. Individuals requiring further questioning or processing will be sent to Secondary Inspection.

Prime Farmland: The Natural Resources Conservation Service has designated prime farmland as "land that has the best combination of physical and chemical characteristics for producing food, forage, fiber, and oilseed crops. The land could be crop, pasture, range, forest, or other uses, but does not include urban built-up land or water bodies since these two are considered irreversible uses. It has the soil quality, growing season, and moisture supply needed to economically produce and sustain high yields when treated and managed according to modern farming methods, including water management" (USDA, 1983).

Public Hearing: A hearing formally advertised and convened to allow any person who deems their interest to be affected by a project an opportunity to be heard. A public hearing includes formal documentation of all comments received.

Recognized Environmental Conditions (RECs): The presence of or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products.

Record of Decision (ROD): A final environmental document published after a Final Environmental Impact Statement (FEIS) that identifies the selected alternative. A ROD discusses the alternatives considered and the basis of the decision as well as any mitigation measures for environmental impacts.

Resource Conservation and Recovery Act (RCRA): Passed by Congress in 1976 to provide cradle-to-grave management of hazardous waste. Regulation is enforced by the U.S. Environmental Protection Agency (EPA) and the Michigan Department of Environmental Protection (DEP).

Right-of-Way (ROW): Public land reserved for locating infrastructure such as a roadway or a utility line. A road right-of-way includes area for any required shoulders, drainage ditches, curb, median, barriers, and fences in addition to the roadway.

Secondary Inspection: The separate locations for additional processing and inspection of commercial vehicles or individuals by Customs and Border Protection after Primary Inspection.

Section 4(f): This is Section 4(f) of the Department of Transportation Act of 1966 as amended. Section 4(f) states that no highway project should be approved which requires the "use" of any publicly owned land from a public park, recreation area, wildlife and waterfowl refuge, or historic site unless there is no feasible or prudent alternative to the use of such land. In addition, adverse impacts to these 4(f) sites must include all possible planning to minimize harm resulting from such use. In the context of Section 4(f), "use" can be either a direct impact (taking of property), or a "constructive use", which may not actually require acquisition of land, but otherwise impairs the function of the resource through changes in access or surroundings.

Section 106: Section 106 of the National Historic Preservation Act of 1966 is the main protection that archaeological, historical, and cultural resource sites have against the encroachment of federally-funded programs in the United States. Section 106 requires that the State Historic Preservation Office (SHPO) review all federal actions for any potentially adverse effect on cultural resources.

Sole Source Aquifers: Aquifer that supplies 50 percent or more of the drinking water in a given area.

Superelevation: The slope to which a roadway is banked between the inner-most lane and the outer-most lane. On freeways and other high-speed facilities, curved segments are often superelevated so traffic can safely travel through the curve at higher speeds.

State Historic Preservation Officer (SHPO): The state agency having jurisdiction over protecting archaeological and aboveground historic architectural resources (e.g. cultural resources).

Stopping Sight Distance: Stopping sight distance is the sum of two distances: (1) the distance traversed by a vehicle from the instant the driver sights a reason for stopping until the instant the brakes are applied; and (2) the distance needed to stop the vehicle from the instant brake application begins. These are referred to as brake reaction distance and braking distance, respectively.

Technical Memorandum: Reports detailing the processes and descriptions of various analyses such as Traffic, Air and Noise, Wetland Delineation, and others which were used to prepare a Draft and/or Final Environmental Impact Statement.

Temporary Impact: Refers to impacts occurring during construction that cease to exist after construction associated with the project is completed (e.g. dust associated with construction activities).

Threatened Species: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Traffic Count: Mechanical, digital, or photographic means of counting the number and type of vehicles passing a given location.

Transit: Transportation mode involving buses, trains, and other vehicles that individually move larger numbers of people than do individual automobiles. Also known as mass transit, public transit, public transportation, or urban transit.

Transboundary Effects: Project effects that extend across the border and affect another country's environment. NEPA requires agencies to include analysis of reasonably foreseeable transboundary effects of proposed actions in their analysis of proposed actions in the United States.

Transportation System Management (TSM): An Alternative that includes reasonable small-scale roadway improvements such as traffic signal improvements, turn restrictions, turn lanes, and short distance local road improvements. TSM does not include major construction.

Travel Demand: The counted or projected volume of traffic that is or will be utilizing a roadway in a specified time period (i.e., 24-hours, peak periods, etc.).

Travel Forecasting: The process by which demographic information (population and employment) and land use projections are used to determine potential future vehicle trips on a given transportation network.

Under Clearance: The vertical distance from the surface of a roadway to the bottom of a bridge deck crossing over that roadway.

Underground Storage Tank Site (UST): Sites containing one or more underground storage tanks (USTs) or those found to show evidence of an existing or removed tank during background research or site visits. Depending on the type, age, and condition of the UST and associated underground piping, sites of this type may present a risk for soil and/or groundwater contamination. If the UST is documented as leaking or shows visible signs of leakage at ground level, it is referred to as a Leaking Underground Storage Tank (LUST).

Unique Farmlands: The Natural Resources Conservation Service has defined unique farmlands as "land other than prime farmland that is used for the production of specific high value food and fiber crops. These lands have a special combination of factors needed to economically produce sustained high quality yields of a specific crop when treated and managed according to modern farm methods. The special factors that make the land unique include soil quality, growing season, temperature, humidity, elevation, moisture supply, or other conditions such as nearness to market that favor growth of a specific crop. Moisture supply is in the form of stored moisture, precipitation, or a developed irrigation system."

United States Army Corps of Engineers (USACE): The federal agency responsible for review of all water crossings of navigable streams. The USACE also serves in an advisory role on wetland impacts of Michigan highway projects.

United States Department of Agriculture (USDA): The federal agency responsible for review of any prime and unique farmland impacts.

United States Environmental Protection Agency (EPA): A federal agency that is charged with protecting the natural resources of the country.

United States Fish and Wildlife Service (USFWS): The federal agency responsible for review of the impacts on any federally listed threatened and endangered species along with other game and non-game species. The USFWS also serves as an advisory agency for many other environmental issues including wetland and habitat impacts.

Upland: An area that is not classified as a wetland.

Urban Cross-Section: A roadway facility characterized by enclosed drainage, meaning that storm water is conveyed away from the paved roadway using curbs, gutters, catch-basins and storm sewers. (The opposite is a Rural Cross-Section, where water is conveyed away from the roadway using swales, slopes, etc.) Urban divided freeway cross-sections have a median barrier wall separating opposing lanes of traffic.

Weaving: The crossing of two or more traffic streams traveling in the same direction along a length of a highway, without the aid of traffic control devices except for guide signs. An example of a weave would be a freeway where an on-ramp is closely followed by an off-ramp. Traffic wishing to exit the freeway needs to travel from the right lane to the off-ramp. In the same area, traffic wishing to enter the freeway needs to travel from the on-ramp to the right travel lane. The segment of roadway where both streams of traffic conflict with each other is a weave.

Wetland: Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support plants typically adapted for life in saturated soil conditions. The term "wetland" encompasses many different types of plant communities, and is dependent on the duration and depth of inundation. These different types can include fens, bogs, wet meadows, wooded wetlands, scrub-shrub wetlands, open water wetlands, etc. A "wetland complex" describes a contiguous area composed of more than one type of wetland. An area that is <u>not</u> classified as a wetland is called "upland."

Wetland Delineation: The process used to determine the jurisdictional boundaries of a wetland. Wetland delineations are a function of the soils, hydrology and vegetation observed.

Wetland Mitigation: Avoidance, minimization, and compensation for the loss of functional values associated with wetlands impacted by an activity. The most common types of compensation include wetland restoration (reestablishing some or all of the values associated with wetland where wetlands have been drained), and wetland creation (establishing new wetland in an upland or drained area).

CHAPTER 10

LIST OF ACRONYMS

Acronym	Meaning
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
APE	Area of Potential Effect
AQCR	Air Quality Control Region
AQI	Air Quality Index
AST	Above Ground Storage Tanks
ASTM	American Society for Testing and Materials
BEA	Baseline Environmental Assessment
BMP	Best Management Practices
BWBA	Blue Water Bridge Authority
CAAA	Clean Air Act Amendments
CBP	Customs and Border Protection
CBSA	Canada Border Services Agency
CCRA	Canada Customs and Revenue Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability
CO	Carbon Monoxide
CORRACTS	Corrective Action Facilities

Acronym	Meaning
CSO	Combined Sewer Overflow
CSS	Context Sensitive Solutions
CVPC	Commercial Vehicle Processing Center
DEIS	Draft Environmental Impact Statement
DHV	Design Hour Volume
EA	Environmental Assessment
EIS	Environmental Impact Statement
EM	Emergent Wetland
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
FAST	Free and Secure Trade
FDA	Food and Drug Administration
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIA	Family Independence Agency
FIRM	Flood Insurance Rate Maps
FO	Forested Wetland
FONSI	Finding of No Significant Impacts
FPPA	Farmland Protection Policy Act

Acronym	Meaning
FQI	Floristic Quality Index
GIS	Geographic Information System
GRIT	Gamma Ray Inspection Technology
GSA	General Services Administration
HCS	Highway Capacity Software
INS	Immigration and Naturalization Services
KLD	KLD Associates, Inc.
LESA	Land Evaluation Site Assessment
LOS	Level of Service
LQG	Large Quantity Generator
LRP	Long Range Plan
LUST	Leaking Underground Storage Tank
LWCF	Land and Water Conservation Fund Act
MDA	Michigan Department of Agriculture
MDCH	Michigan Department of Community Health
MDEQ	Michigan Department of Environmental Quality
MDEQ-RRD	Michigan Department of Environmental Quality-Remediation and Redevelopment Division
MDNR	Michigan Department of Natural Resources
MDOT	Michigan Department of Transportation
MOE	Measure of Effectiveness

Acronym	Meaning
MOT	Maintenance of Traffic
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MSE	Mechanically Stabilized Earth
NAAQS	National Ambient Air Quality Standards
NAFTA	North American Free Trade Agreement
NEPA	National Environmental Policy Act
NFRAP	No Further Remedial Action Planned
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NREPA	Natural Resources Environmental Protection Act
NRHP	National Register of Historic Places
O_3	Ozone
OW	Open Water Wetland
PA	Practical Alternative
Pb	Lead
PM	Particulate Matter
PPB	Parts per Billion

Acronym	Meaning
PPM	Parts per Million
PSI	Pollutant Standards Index
PSP	Public/Semi-Private
RCRA	Resource Conservation and Recovery Act
RCRIS	Federal Resource Conservation and Recovery Information System
REC	Recognized Environmental Condition
ROW	Right-of-Way
SB	Sear Brown, Inc.
SCCOTS	St. Clair County Transportation Study
SEMCOG	Southeast Michigan Council of Governments
SHPO	State Historic Preservation Office
SME	Soils and Materials Engineers, Inc.
SO_2	Sulfur Dioxide
SQG	Small Quantity Generator
SS	Scrub/Shrub Wetland
TA	Technical Advisory
TIP	Transportation Improvement Program
TSD	Treatment Storage and Disposal
TSM	Transportation System Management
USACE	United States Army Corps of Engineers

Acronym	Meaning
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
US	United States
VAU	Visual Assessment Units
WCR	Wetland and Coastal Resources, Inc.
WHMD	Waste and Hazardous Materials Division

CHAPTER 11

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REFERENCES

AAA of Michigan. 1955. Map of Port Huron.

Adamus, P.R., E.J. Clairain, R.D. Smith, and R.E. Young. 1987. Wetland Evaluation Technique (WET). Volume II: Methodology. Vicksburg, Mississippi. U.S. Department of the Army, Waterways Experiment Station.

Adamus, P.R., L.T. Stockwell, E.J. Clairain, M.E. Morrow, L.D. Rozas, and R.D. Smith. 1991. Wetland Evaluation Technique (WET). Volume I: Literature review and evaluation rationale. Technical Report WRP-DE-2. Vicksburg, Mississippi. U.S. Department of the Army, Waterways Experiment Station.

American Association of State Highway Transportation Officials. 2007. Transportation Invest In Our Future America's Freight Challenge.

Anderson, Jim, and Dwayne Anderson. 1983. Unseen Wonder of the World: The St. Clair Railroad Tunnel, Vol. 19. No. 2.

Andreas, A.T. & Co. 1883. History of St. Clair County, Michigan. Chicago, IL. Andreas, A.T. & Co.

Banker, Levi. 2003. Olde Town Historic Neighborhood, Inc. Port Huron, MI. www.oldetownporthuron.com/oldetown.htm.

Barondess, Margaret M. 1997. "A Tale of Two Bridges Spanning Blue Waters." Michigan History Magazine. Vol. 81. No. 4.

Bartoldus, C.C., E.W. Garbisch, and M.L. Kraus. 1994. Evaluation for Planned Wetlands (EPW). St. Michaels, Maryland. Environmental Concern In.

Blue Water Bridge Authority. 2003. Canadian Plaza Master Plan Final Report Draft.

Bodley, William. 1988. "The Frst Fort at Le Detroit." Michigan History. Vol. 72. No. 6.

Brennan, James. 2003. E.C. Williams House. Michigan Historical Markers. http://www.michmarkers.com/Frameset.htm.

Carman, S.M. 2001. Special animal abstract for *Obovaria subrotunda* (Round Hickorynut). Lansing, MI. Michigan Natural Features Inventory.

Chaput, Donald, ed. 1962. Michigan History. Michigan Historical Commission.

Charter Township of Port Huron. 2003 Zoning Ordinance.
City of Port Huron. 2001. Parks and Recreation Plan.

City of Port Huron. 2003. Comprehensive Plan Summary.

Economic Development Alliance of St. Clair County. 2004. St. Clair County Bottom Line – Area Profile.

ESRI Citation – (Environmental Systems Research Institute, Inc.). Redlands, CA.

Federal Highway Administration. 1983. I-94 Blue Water Bridge and Plaza, St. Clair County. Draft Environmental Impact and Section 4(f) Statement.

Federal Highway Administration. 1983. I-94 Blue Water Bridge and Plaza, St. Clair County. Final Environmental Impact and Section 4(f) Statement.

Federal Highway Administration. 2001. Manual for Air Quality Considerations in Environmental Documents. Southern Resource Center.

Federal Highway Administration. 2005. FHWA Section 4(f) Policy Paper.

Fort Gratiot Township. 1999. Comprehensive Master Plan for Fort Gratiot Township, Michigan 1999-2020.

Gleason, H.A., and Cronquist, A. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. Bronx, NY. The New York Botanical Garden. Second Ed.

Gordon, S.C. 1992. How to Complete the Ohio Historic Inventory. Columbus, Ohio. Ohio Historical Society, Inc.

Harding, J.H., and J.A. Holnam. 1990. Michigan Turtles and Lizards. East Lansing, Michigan. Cooperative Extension Service, Michigan State University.

Harris, Cyril M. 1998. American Architecture an Illustrated Encyclopedia. New York. W.W. Norton & Company.

Herman, K.D., L.A. Masters, M.R. Penskar, A.A. Reznicek, G.S. Wilhelm, and W.W. Brodowicz. 1996. Floristic quality assessment with wetland categories and computer application programs for the State of Michigan. Lansing, MI. Michigan Department of Natural Resources, Wildlife Bureau, Natural Heritage Program.

Holmgren, N.H. 1998. Illustrated Companion to Gleason and Cronquist's Manual. Bronx, NY. The New York Botanical Garden.

Kenn, John M. 1975. "The Saint Clair River Railroad Tunnel." Vermilion, OH. Inland Seas: Quarterly Journal of the Great Lakes Historical Society 31(3). Great Lakes Historical Society.

Kimball Township. 1995. Kimball Township Master Plan.

Klein, Marilyn W., and David P. Fogle. 1986. Washington D.C. Clues to American Architecture. Starhill Press.

Lau, Michael C., Cynthia S., Y. Lee, Gregg G., Judith L. Rochat, Eric R. Boeker, and Gregg C. Fleming. 2004. FHWA Traffic Noise Model Users Guide (Version 2.5 Addendum). Federal Highway Administration.

Lee, Y. 2000. Special animal abstract for *Clemmys guttatas* (spotted turtle). Lansing, MI. Michigan Natural Features Inventory.

Library of Congress. 2003. American Memory: Historical Collections for the National Digital Library. http://www.memory.loc.gov/ammem/.

McAlester, Virginia and Lee. 1993. A Field Guide to American Houses. New York: Knopf.

Merritt, R., and K. Cummins. 1996. Aquatic Insects of North America. Dubuque, Iowa. Kendall/Hunt Publishing Co. pp 862.

Michigan's 2003 Annual Air Quality Report, Appendix A, Criteria Pollutant Summary for 2003, 1-hr 2nd highest in Oakland Park, Oakland County, Air Quality Division, Lansing, MI , October 2004

Michigan Department of Environmental Quality (MDEQ). 2002. Qualitative Biological and Habitat Survey Protocols for Wadable Streams and Rivers. GLEAS Procedure Number 51 with 2002 revisions. Lansing, Michigan. Michigan Department of Environmental Quality, Surface Water Quality Division.

Michigan Department of Environmental Quality. 2001. MDEQ Wetland Identification Manual: A technical manual for identifying wetlands in Michigan. EQ2787.

Michigan Department of Transportation. 1999. Final Report Blue Water Bridge and Toll Plaza Operations Study.

Michigan Department of Transportation. 2003. Commission Policy 10136, Noise Abatement.

Michigan Department of Transportation / Federal Highway Administration in Cooperation with the U.S. Coast Guard, Blue Water Bridge Authority. 1994. Environmental Report (and Re-Evaluation of 1983 Environmental Impact Statement). Blue Water Bridge Additional Capacity Project.

Michigan Department of Transportation. 2007. State Long-Range Transportation Plan 2005-2030 Economic Impact Analysis.

Michigan Department of Transportation. 2007. State Long-Range Transportation Plan 2005-2030 Freight Profile Technical Report.

Ministry of Transportation, Ontario. 2001. Ontario-Michigan Border Crossing Traffic Study, Summary Report.

Ministry of Transportation, Ontario. 2001. Ontario-Michigan Border Crossing Traffic Study, Technical Report.

Mitts, Dorothy Marie. 1968. That Noble Country: The Romance of the St. Clair River Region. Philadelphia. Dorrance & Company.

National Park Service. 2002. National Register Information System located online at http://www.cr.nps.gov/nr/.

Parsons Brinckerhoff Quade & Douglas, Inc. 2002. Truck Freight Crossing the Canada-U.S. Border. An Analysis of the Cross-Border Component of the 1999 Canadian National Roadside Study.

Ontario Ministry of Finance. 2005. Towards 2025: Ontario's Long-Term Outlook.

Orzag, Peter. R. Director of the Congressional Budget Office. 2007. The Budget and Economic Outlook: Fiscal Years 2008 to 2017, Testimony before the Committee on the Budget, U.S. House of Representatives.

Port Huron City Engineer's Office. 1929. Map of Port Huron.

Rand McNally Corporation. 1895. The New 11 x 14 Atlas of the World. 2002. Online at http://www.livgenmi.com/1895ky.htm.

Sanborn Map Company.
1887. Insurance Maps of Port Huron, Michigan. Broadway, New York.

1892. Insurance Maps of Port Huron, Michigan. Broadway, New York.

1897. Insurance Maps of Port Huron, Michigan. Broadway, New York.

1898. Insurance Maps of Port Huron, Michigan. Broadway, New York.

1903. Insurance Maps of Port Huron, Michigan. Broadway, New York.

1911. Insurance Maps of Port Huron, Michigan. Broadway, New York.

1916. Insurance Maps of Port Huron, Michigan. Broadway, New York.

1950. Insurance Maps of Port Huron, Michigan. Broadway, New York.

Scott, W.B., and E.J. Crossman. 1979. Freshwater Fishes of Canada. Fisheries Research Board of Canada, Ottawa 1973. Bulletin 184.

Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. 1993.

Southeast Michigan Council of Governments. 2003. Employment Change by Community, Southeast Michigan, 1999-2002.

St. Clair County Metropolitan Planning Commission. 2004. St. Clair 2030 Long Range Transportation Plan.

St. Clair County Metropolitan Planning Commission. 2002. Kimball Township Zoning Ordinance # 142.

St. Clair County Metropolitan Planning Commission. 2000. St. Clair County Master Plan Summary. Endorsed by: St. Clair County Board of Commissioners.

Stamps, Richard, and Nancy Wright. 1986. "Thomas Edison's Boyhood Years: A Puzzle". Michigan History. Vol. 70. No. 3. pp 36-43.

Tappan, Judge Harvey. 1910. Pioneer History of St. Clair County-Taken from Public Records. St. Clair County Pioneer Society. Algonac, MI.

Taylor, Dr. John C., Dr. Douglas Robideaux, and Dr. George C. Jackson. 2003. The U.S.-Canada Border: Cost Impacts, and Short to Long Term Management Options.

United States Department of Agriculture. 1974. Soil Survey of St. Clair County, Michigan.

United States Department of Agriculture, Natural Resources Conservation Service. 1998. Field Indicators of Hydric Soils in the United States. Version 4.0. G.W. Hurt, Whited, P.M., and Pringle, R.F. (eds.). USDA, NRCS, Fort Worth, Texas.

United States Department of Transportation Bureau of Transportation Statistics. 2001. North American Trade and Travel Trends.

United States Department of Transportation Bureau of Transportation Statistics. 2007. TransBorder Freight Database. Online at: http://www.bts.gov/programs/international/transborder/tbdr/

United States Environmental Protection Agency. 1992. Guidelines for Modeling Carbon Monoxide from Roadway Intersections, Office of Air Quality Planning and Standards, Technical Support Division, Research Triangle Park, North Carolina.

United States Environmental Protection Agency. 1995. User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections, Office of Air Quality Planning and Standards, Research Triangle Park, NC.

United States Environmental Protection Agency. 2003. User's Guide to MOBILE6.1 and MOBILE6.2, Mobile Source Emission Factor Model. Assessment and Standards Division, Office of Transportation and Air Quality, Ann Arbor, Michigan.

United States General Services Administration. Land Port of Entry Design Guide Supplement. 2005.

United States Geological Survey. 1952. Port Huron, Michigan Quadrangle. Washington, D.C.: Department of the Interior.

University of Virginia Geospatial and Statistical Data Center. 1998. United States Historical Census Data Browser. University of Virginia. 2003. http://fisher.lib.virginia.edu/census/.

Voss, E.G. 1972. Michigan Flora. Part I. Gymnosperms and monocots. Bull. Cranbrook Institute of Science Bulletin 55 and University of Michigan Herbarium, MI.

Voss, E.G. 1985. Michigan Flora. Part II. Dicots (Sauraceae – Cornaceae). Bull. Cranbrook Institute of Science Bulletin 55 and University of Michigan Herbarium, MI.

Voss, E.G. 1996. Michigan Flora. Part III. Dicots (Primulaceae – Asteraceae). Bull. Cranbrook Institute of Science Bulletin 55 and University of Michigan Herbarium, MI.

Washington State Department of Transportation. 2005. Reader-Friendly Document Tool Kit.

Weir, Donald J., John R. Kern, William E. Rutter, C. Stephan Demeter, and Richard Neuman. 1983. Preliminary Historic and Archaeological Resource Survey for the I-94 Blue Water Bridge Plaza Revision, Port Huron, MI. Submitted by Commonwealth Associates, Inc. Jackson, MI.

Western Historical Company. 1883. History of St. Clair County, Michigan. Chicago: A.T. Andreas & Company.

Wikipedia, The Free Encyclopedia. 2003. Port Huron, Michigan. http://www.wikipedia.org/W:K:/Port_Huron,_Michigan.

Writers' Program. 1941. Michigan: A Guide to the Wolverine State. Oxford University Press. New York, NY.

Wyatt, B. 1986. Cultural Resource Management in Wisconsin: Volume II. Historic Preservation Division, State Historical Society of Wisconsin, Madison.

Consultant Disclosure Statement

Wilbur Smith Associates, Inc. (WSA) has no interest, financial or otherwise, in the preparation of the Blue Water Bridge engineering analysis and Draft Environmental Impact Statement other than compensation for the services performed and the general enhancement of WSA's professional reputation. The team of professionals, which WSA assembled to conduct field studies and analyses, was selected based solely upon their qualifications. To the best of WSA's knowledge, no person or firm contributing to the preparation of this document has any interest in the findings or outcome of the process.

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